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FIGURE 1

Human G Protein Coupled Receptor Family
(Receptors known as of January, 1999)

CLASS	LIGAND	NUMBER	TISSUE	PHYSIOLOGY	THERAPEUTICS
•Class I					
Rhodopsin like					
	•Amine				
	·Acetylcholine (muscarinic & nicotinic)	5	Brain, Nerves, Heart	Neurotransmitter	Acuity, Alzheimer's
	·Adrenoceptors				
	·Alpha Adrenoceptors	6	Brain, Kidney, Lung	Gluconeogenesis	Diabetes, Cardiovascular
	·Beta Adrenoceptors	3	Kidney, Heart	Muscle Contraction	Cardiovascular, Respiratory
	·Dopamine	5	Brain, Kidney, GI	Neurotransmitter	Cardiovascular, Parkinson's
	·Histamine	2	Vascular, Heart, Brain	Vascular Permeability	Anti-inflammatory, Ulcers
	·Serotonin (5-HT)	16	Most Tissues	Neurotransmitter	Depression, Insomnia, Analgesic
	•Peptide				
	·Angiotensin	2	Vascular, Liver, Kidney	Vasoconstriction	Cardiovascular, Endocrine
	·Bradykinin	1	Liver, Blood	Vasodilation,	Anti-inflammatory, Asthma
	·C5a anaphylatoxin	1	Blood	Immune System	Anti-inflammatory
	·Fmet-leu-phe	3	Blood	Chemoattractant	Anti-inflammatory
	·Interleukin-8	1	Blood	Chemoattractant	Anti-inflammatory
	·Chemokine	6	Blood	Chemoattractant	Anti-inflammatory
	·Orexin	2	Brain	Fat Metabolism	Obesity
	·Nociceptin	1	Brain	Bronchodilator, Pain	Airway Diseases, Anesthetic
	·CCK (Gastrin)	2	Gastrointestinal	Motility, Fat Absorption	Gastrointestinal, Obesity, Parkinson's
	·Endothelin	2	Heart, Bronchus, Brain	Muscle Contraction	Cardiovascular, Respiratory
	·Melanocortin	5	Kidney, Brain	Metabolic Regulation	Anti-inflammatory, Analgesics
	·Neuropeptide Y	5	Nerves, Intestine, Blood	Neurotransmitter	Behavior, Memory, Cardiovascular
	·Neurotensin	1	Brain,	CNS	Cardiovascular, Analgesic
	·Opioid	3	Brain,	CNS	Depression, Analgesic
	·Somatostatin	5	Brain, Gastrointestinal	Neurotransmitter	Oncology, Alzheimer's

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·Tachykinin (Substance P, NKA_1)	3	Brain Nerves	Neurohormone	Depression, Analgesic
·Thrombin	3	Platelets, Blood Vessels	Coagulation	Anti-coagulant, Anti-inflammatory
·Vasopressin-like	4	Arteries, Heart, Bladder	Water Balance	Anti-diuretic, Diabetic Complications
·Galanin	1	Brain, Pancreas	Neurotransmitter	Analgesics, Alzheimer's
·Hormone protein				
·Follicle stimulating hormone	1	Ovary, Testis	Endocrine	Infertility
·Lutropin-choriogonadotropic	1	Ovary, Testis	Endocrine	Infertility
·Thyrotropin	1	Thyroid	Endocrine	Thyroidism, Metabolism
·(Rhod)opsin				
·Opsin	5	Eye	Photoreception	Ophthalmic Diseases
·Olfactory	4(~1000)	Nose	Smell	Olfactory Diseases
·Prostanoid				
·Prostaglandin	5	Arterial, Gastrointestinal	Vasodilation, Pain	Cardiovascular, Analgesic
·Lysophosphatidic Acid	2	Vessels, Heart, Lung	Inflammation	Cancer, Anti-Inflammatory
·Sphingosine-1-phosphate	2	Most Cells	Cell proliferation	Cancer
·Leukotriene	1	White Blood Cells, Bronchus	Inflammation	Asthma, Rheumatoid Arthritis
·Prostacyclin	1	Arterial, Gastrointestinal	Platelet Regulation	Cardiovascular
·Thromboxane	1	Arterial, Bronchus	Vasoconstriction	Cardiovascular, Respiratory
·Nucleotide-like				
·Adenosine	4	Vascular, Bronchus	Multiple Effects	Cardiovascular, Respiratory
·Purinoceptors	4	Vascular, Platelets	Relaxes Muscle	Cardiovascular, Respiratory
·Cannabis	2	Brain	Sensory Perception	Analgesics, Memory
·Platelet activating factor	1	Most Peripheral Tissues	Inflammation	Anti-inflammatory, Anti-asthmatic
·Gonadotropin-releasing hormone like				
·Gonadotropin-releasing hormone	1	Reproductive Organs, Pituitary	Reproduction	Prostate Cancer, Endometriosis
·Thyrotropin-releasing hormone	1	Pituitary, Brain	Thyroid Regulation	Metabolic Regulation
·Growth hormone- inhibiting factor	1	Gastrointestinal	Neuroendocrine	Oncology, Alzheimer's
·Melatonin	1	Brain, Eye, Pituitary	Neuroendocrine	Regulation of Circadian Cycle

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•Class II					
Secretin like					
	·Secretin	1	Gastrointestinal, Heart	Digestion	Obesity, Gastrointestinal
	·Calcitonin	1	Bone, Brain	Calcium Resorption	Osteoporosis
	·Corticotropin releasing factor/urocortin	1	Adrenal, Vascular, Brain	Neuroendocrine	Stress, Mood, Obesity
	·Gastric inhibitory peptide (GIP)	1	Adrenals, Fat Cells	Sugar/Fat Metabolism	Diabetes, Obesity
	·Glucagon	1	Liver, Fat Cells, Heart	Gluconeogenesis	Cardiovascular
	·Glucagon-like Peptide 1 (GLP-1)	1	Pancreas, Stomach, Lung	Gluconeogenesis	Cardiovascular, Diabetes, Obesity
	·Growth hormone-releasing hormone		1	Brain	Neuroendocrine Growth Regulation
	·Parathyroid hormone	1	Bone, Kidney	Calcium Regulation	Osteoporosis
	·PACAP	1	Brain, Pancreas, Adrenals	Metabolism	Metabolic Regulation
	·Vasoactive intestinal polypeptide (VIP)	1	Gastrointestinal	Motility	Gastrointestinal
•Class III					
	·Metabotropic Glutamate	7	Brain	Sensory Perception	Hearing, Vision
	·$GABA_B$	1	Brain	Neurotransmitter	Mood Disorders
	·Extracellular Calcium Sensing	1	Parathyroid, Kidney, GI Tract	Calcium Regulation	Cataracts, GI Tumors

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Figure 1, pg. 3 of 3

Figure 2

G protein-coupled receptors:

(Division into Class A Or Class B)

1. **A1 adenosine receptor** [Homo sapiens]. ACCESSION AAB25533
npivyaf riqkfrvtfl kiwndhfrcq pappidedlp eerpdd
Class A

2. **adrenergic, alpha -1B-, receptor** [Homo sapiens]. ACCESSION NP_000670
npiiypcsskefkrafvrilgcqcrgrgrrrrrrrrrlggcaytyrpwtrggslersqsrkdsldsgsclsgsqrtlpsaspspgylgrgap
ppvelcafpewkapgallslpapeppgrrgrhdsgplftfkllepespgtdggasnggceaaadvangqpgfksnmplapgqf
Class A

3. **adrenergic receptor alpha-2A** [Homo sapiens]. ACCESSION AAG00447
npviytifnhdfrrafkkilcrgdrkriv
Class A

4. **alpha-2B-adrenergic receptor** - human. ACCESSION A37223
npviytifnqdfrrafrrilcrpwtqtaw
Class A

5. **alpha-2C-adrenergic receptor** - human. ACCESSION A31237
npviytvfnqdfrpsfkhilfrrrrrgfrq
Class A

6. **beta-1-adrenergic receptor** [Homo sapiens]. ACCESSION NP_000675
npiiycrspdfrkafqgllccarraarrrhathgdrprasgclarpgpppspgaasddddddvvgatpparllepwagcnggaaads
d ssldepcrpgfaseskv
Class A

7. **beta-2 adrenergic receptor**. ACCESSION P07550
npliycrspdfriafqellclrrsslkaygngyssngntgeqsgyhveqekenkllcedlpgtedfvghqgtvpsdnidsqgrncstnd
sll
Class A

8. **dopamine receptor D1** [Homo sapiens]. ACCESSION NP_000785
npiiyafnadfrkafstllgcyrlcpatnnaietvsinnngaamfsshheprgsiskecnlvyliphavgssedlkkeeaagiarplekls
palsvildydtdvslekiqpitqngqhpt
Class A

9. **D(2) dopamine receptor.** ACCESSION P14416
npiiyttfniefrkaflkilhc
Class A

10. **d3 dopamine receptor** - human. ACCESSION G01977
npviyttfniefrkaflkilsc
Class A

11. **dopamine receptor D4** - human. ACCESSION DYHUD4
npviytvfnaefrnvfrkalracc
Class A

12. **dopamine receptor D5** - human. ACCESSION DYHUD5
npviyafnadfqkvfaqllgcshfcsrtpvetvnisnelisynqdivfhkeiaaayihmmpnavtpgnrevdndeeegpfdrmfqi
yqtspdgdpvaesvweldcegeisldkitpftpngfh
Class A

13. **muscarinic acetylcholine receptor M1** [Homo sapiens]. ACCESSION NP_000729
npmcyalcnkafrdtfrllllcrwdkrrwrkipkrpgsvhrtpsrqc
Class A

14. **muscarinic acetylcholine receptor M2** [Homo sapiens]. ACCESSION NP_000730
npacyalcnatfkktfkhllmchyknigatr
Class A

15. **muscarinic acetylcholine receptor M3 [Homo sapiens].**
npvcyalcnktfrttfkmlllcqcdkkkrrkqqyqqrqsvifhkrapeqal
Class A

16. **muscarinic acetylcholine receptor M4** [Homo sapiens]. ACCESSION NP_000732
npacyalcnatfkktfrhllllcqyrnigtar
Class A

17. **m5 muscarinic receptor.** locus HUMACHRM ACCESSION AAA51569
npicyalcnrtfrktfkmlllcrwkkkkveeklywqgnsklp
Class A

18. **5-hydroxytryptamine (serotonin) receptor 1A** [Homo sapiens]. ACCESSION BAA90449
npviyayfnkdfqnafkkiikckf
Class A

19. **5-hydroxytryptamine (serotonin) receptor 1B** [Homo sapiens]. ACCESSION BAA94455
npiiytmsnedfkqafhklirfkcts
Class A

20. **5-hydroxytryptamine (serotonin) receptor 1E** [Homo sapiens]. ACCESSION BAA94458
npllytsfnedfklafkklircre
Class A

21. **OLFACTORY RECEPTOR 6A1**. ACCESSION O95222

npiiyclrnqevkralccilhlyqhqdpdpkkgsrnv
Class A

22. **OLFACTORY RECEPTOR 2C1**. ACCESSION O95371
npliytlrmmevkgalrrllgkgrevg
Class A

23. **angiotensin receptor 1 [Homo sapiens].** ACCESSION NP_033611
nplfygflgkkfkryflqllkyippkakshsnl*st*km*st*l*s*yrpsdnv**ssst**kkpapcfeve
Class B

24. **angiotensin receptor 2** [Homo sapiens]. ACCESSION NP_000677
npflycfvgnrfqqklrsvfrvpitwlqgkresmscrk**sss**lremetfvs
Class B

25. **interleukin 8 receptor beta (CXCR2)** [Homo sapiens]. ACCESSION NM_001557
NPLIYAFIGQKFRHGLLKILAIHGLISKDSLPKDSRPSFVGSSSGHTSTTL
Class B

26. **cx3c chemokine receptor 1** (cx3cr1) (fractalkine receptor)
ACCESSION P49238
npliyafagekfrrylyhlygkclavlcgrsvhvdf**sss**e**s**qrsrhg**s**vl**ss**nftyhtsdgdallll
Class B

27. **neurotensin receptor - human.** ACCESSION S29506
n pilynlvsanfrhiflatlaclcpvwrrrrkrpafsrkad**s**v**ss**nh*t*l**ss**natretly
Class B

28. **SUBSTANCE-P RECEPTOR (SPR)** (NK-1 RECEPTOR) (NK-1R). ACCESSION P25103
npiiycclndrfrlgfkhafrccpfisagdyeglemkstrylqtqgsvykvsrle*tt*i*st*vvgaheeepedgpka*t*p**ss**ldlt**s**nc**ss**r**s**d
sktmte**s**fsf**ss**nvls
Class B

29. **vasopressin receptor type 2** [Homo sapiens]. ACCESSION AAD16444
npwiyasfsssvsselrsllccargrtppslgpqde***sc****tt***asss**lakd***tss***
Class B

30. **thyrotropin-releasing hormone receptor** - human. ACCESSION JN0708
npviynlmsqkfraafrklcnckqkptekpanysvalnysvikesdhf***st***elddi***t****v****t****d****t****ylsa****t**kvsfddtclasevsfsqs
Class B

31. **oxytocin receptor - human.** ACCESSION A55493
npwiymlftghlfhelvqrflccsasylkgrrlget**s**a**s**kk**s**n**sss**fvl**s**hr**sss**qr**s**c**s**qpsta
Class B

Figure 2
page 4

32. **neuromedin U receptor 1 [Homo sapiens].** ACCESSION AAG24793
npvlyslmssrfretfqealclgacchrlrprhsshslsrm**ttgst**lcdvgslgswvhplagndgpeaqqetdps
Class B

33. **gastrin receptor.** ACCESSION AAC37528
nplvycfmhrrfrqacletcarccprpprarpralpdedpp**tpsiaslsrlsyttist**lgpg
Class B

34. **galanin receptor 3 [Homo sapiens].** ACCESSION 10879541
nplvyalasrhfrarfrrlwpcgrrrrhrarralrrvrpassgppgcpgdarpsgrllagggqgpepregpvhggeaargpe
Class A

35. **edg-1** - human. ACCESSION A35300
npiiytltnkemrrafirimscckcpsgdsagkfkrpiiagmefsrsksdnsshpqkdegdnpetimssgnvnsss
Class A

36. **central cannabinoid receptor** [Homo sapiens]. ACCESSION NP_057167
npiiyalrskdlrhafrsmfpscegtaqpldnsmgdsdclhkhannaasvhraaescikstvkiakvtmsvstdtsaeal
Class A

37. **delta opioid receptor** - human. ACCESSION I38532
npvlyafldenfkrcfrqlcrkpcgrpdpssfsrpreatarervtactpsdgpgggraa
Class A

38. **proteinase activated receptor 2 (PAR-2) human**. ACCESSION P55085
dpfvyyfvshdfrdhaknallcrsvrtvkqmqvs**ltskkhsrkssssyssssttvktsy**
Class B

39. **vasopressive intestinal peptide receptor (VIPR) rat**. ACCESSION NM_012685
NGEVQAELRRKWRRWHLQGVLGW**SSKSQHPWGGSNGATCSTQVSMLTRVSPSARR**
SSSFQAEVSLV
Class B

	A	B	C
1	**GPCR Agonist**	**Generic Name**	**Brand Name**
2	**5-HT**		
3	5-HT-1B/1D	Zolmitriptan	Zomig
4		Rizatriptan	Maxalt
5		Eletriptan	Relpax
6		Trazodone	Desyrel
7	5-HT-1D	Sumatriptan	Imitrex (P)
8		Naratriptan	Amerge
9		Almotriptan	Axert
10	5-HT-1B/1A	Frovatriptan	Frova
11			
12	5-HT-1A	Buspirone	BuSpar
13	5-HT-1A	Buspirone	Generic
14	5-HT-1A	Ziprasidone	Geodon
15			
16	5-HT-4	Tegaserod	Zelnorm
17	5-HT-4	Mosapride	Gasmotin
18	5-HT-4	Cisapride	Propulsid
19			
20	5-HT-2A/2C	Clozapine	Clozaril
21			
22	5-HT-2 / Dopa D1	Femoldopam	Corlopam
23			
24	5-HT/ Opioid u	Tramadol	Ultram
25	5-HT/ Opioid u	Tramadol	Ultracet
26	5-HT/ Opioid u	Tramadol	Generic
27			
28	**Opioid**		
29	Opioid	Codeine	Generic
30		Hydrocodone	Generic
31		Hydromorphone	Dilaudid
32		Levorphanol	Levo-Dromoran
33		Morphine	MS Contin
34		Morphine	Generic
35		Oxycodone	OxyContin
36		Oxycodone/APAP	Generic
37		Oxymorphone	Numorphan
38		Alfentanil	Alfenta
39		Fentanyl	Duragesic
40		Fentanyl	Sublimaze
41		Meperidine	Demerol
42		Sufentanil	Sufenta
43		Levomethadyl	Orlaam
44		Methadone	Dolophine
45		Propoxyphene	Darvon
46		Buprenorphine	Transtec
47		Remifentanil	Ultiva
48			
49	5-HT/ Opioid u	Tramadol	Ultram
50	5-HT/ Opioid u	Tramadol	Ultracet
51	5-HT/ Opioid u	Tramadol	Generic
52		**Fig 3, page 1 of 3**	

	A	B	C
1	**GPCR Agonist**	**Generic Name**	**Brand Name**
53	**ADO**		
54	ADO (mixed)	Adenosine	Adenocard
55		Adenosine	Adenoscan
56			
57	**Adrenoceptor**		
58	Adrenoceptor	Methylphenidate	Generic
59	Beta (mixed)	Isoproterenol	Isuprel
60		Ephedrine	Generic
61		Mephentermine	Wyamine
62	Beta-1	Norepinephrine	Levophed
63			
64	Beta-2	Salmeterol	Serevent
65		Salmeterol/ fluticasone	Advair
66		Albuterol, Aerosol	Generic
67		Albuterol, Sulfate	Generic
68		Albuterol	Proventil
69		Bitolterol	Tornalate
70		Isoetharine	Isoetharine
71		Metaproterenol	Alupent
72		Pirbuterol	Maxair
73		Formoterol	Foradil
74		Formoterol,	Oxis
75		Albuterol	Ventolin HFA
76		Bambuterol	Bambec
77		Salbutamol	Inspiryl Turbuhaler
78		Terbutaline	Brethine
79		Terbutaline	Terbutaline
80	H1 (-) / Beta-2 (+)	loratadine/ pseudoephedrine	Claritin-D
81	H1 (-) / Beta-2 (+)	Fexofenadine/ pseudoephedrine	Allegra-D
82		Terbutaline	Brethine
83	Alpha-Beta (mixed)	Metaraminol	Aramine
84		Epinephrine	Generic
85	Alpha (mixed)	Methoxamine	Vasoxyl
86		Phenyephrine	Neo-Synephrine
87	Alpha-1	Modafinil	Provigil
88		Midodrine	ProAmatine
89			
90	Alpha-2	Guanfacine	Tenex
91		Tizanidine SR	Sirdalud CR
92		Moxonidine	Physiotens
93		Dexmedetomidine	Precedex
94		Brimonidine	Alphagen
95		Apraclonidine	Iopidine
96		**Fig 3, page 2 of 3**	

	A	B	C
1	**GPCR Agonist**	**Generic Name**	**Brand Name**
97			
98	**Acetylcholine**	Bethanechol	Generic
99	Muscarinic AC	Pilocarpine	Salagen
100	Muscarinic AC	Levetiracetam	Keppra
101			
102	**Dopamine**		
103	Dopamine (mixed)	Dopamine	Intropin
104	D1	Femoldopam	Corlopam
105	D2	Apomorphine	Ixense
106	D2/D3	Ropinirole	Requip
107	D2/D3	Pramipexole	Mirapex
108	D2/D3	Amisulpride	Solian
109	D2 Type	Bromocriptine	Parlodel
110	D1/D2	Pergolide	Permax
111			
112	Prostaglandin F2a (PG F2a)	Latanoprost	Xalatan
113	Prostaglandin F2a (PG F2a)	Unknown	Travatan
114	Prostaglandin E1 (PGE1)	Alprostadil	Befar
115			
116	Gonadotropin-releasing hormone (GnRH)	LHRH agonist	TRELSTAR LA
117	GnRH	Leuprolide	Lupron Depot
118			
119			
120	Calcitonin	Calcitonin	
121		**Fig 3, page 3 of 3**	

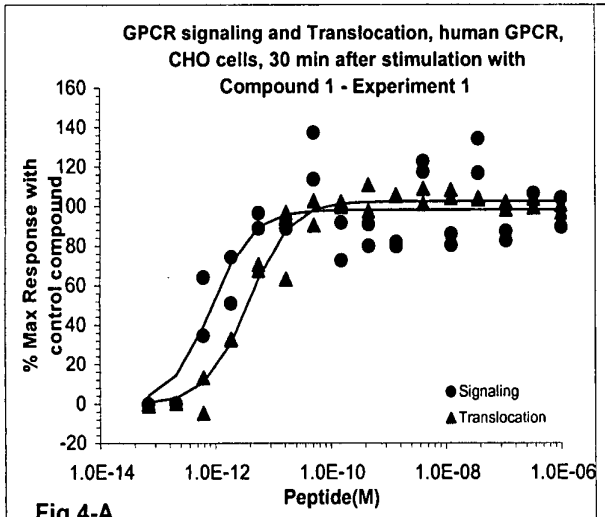
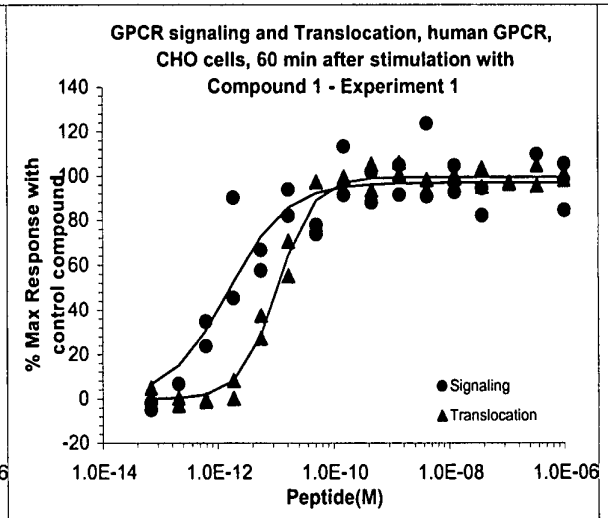
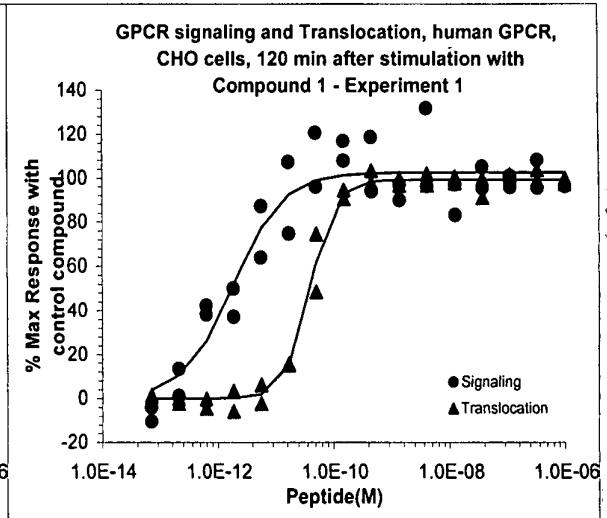

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-A


GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

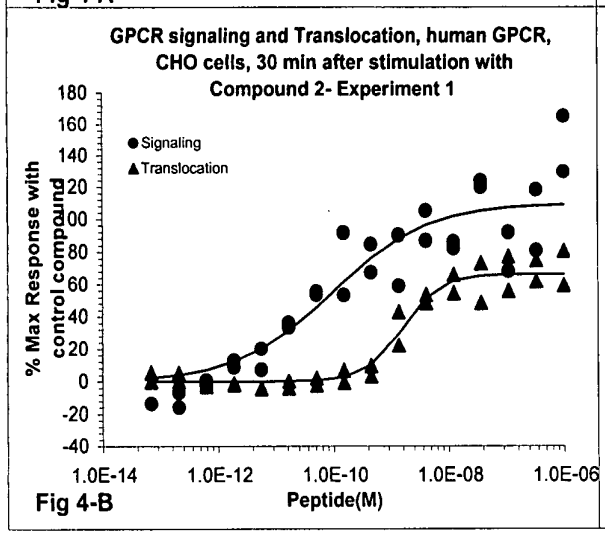
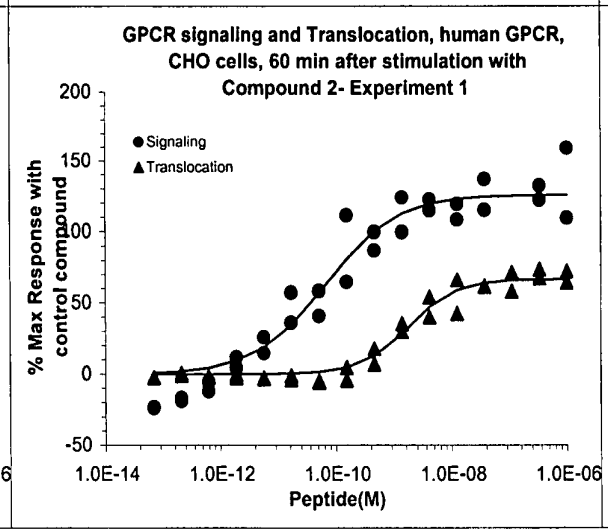
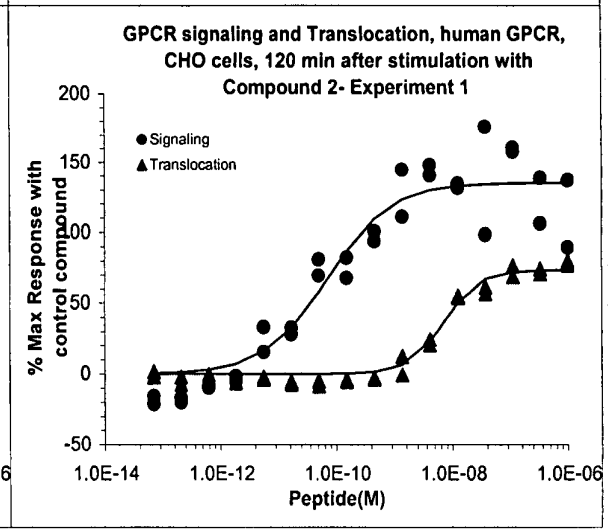

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 2- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-B


GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 2- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 2- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

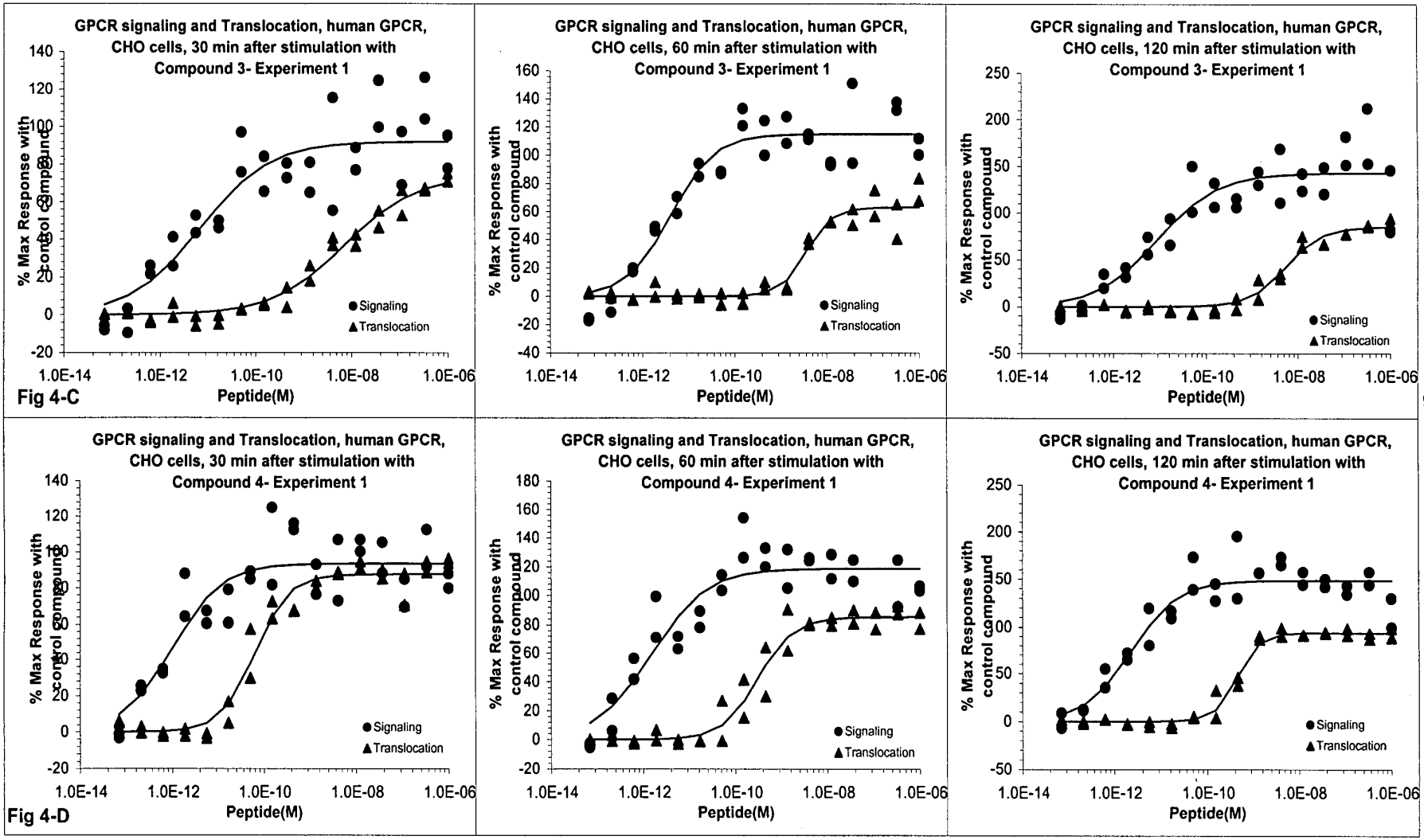

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 3- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 3- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 3- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 4- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 4- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 4- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 4-C

Fig 4-D

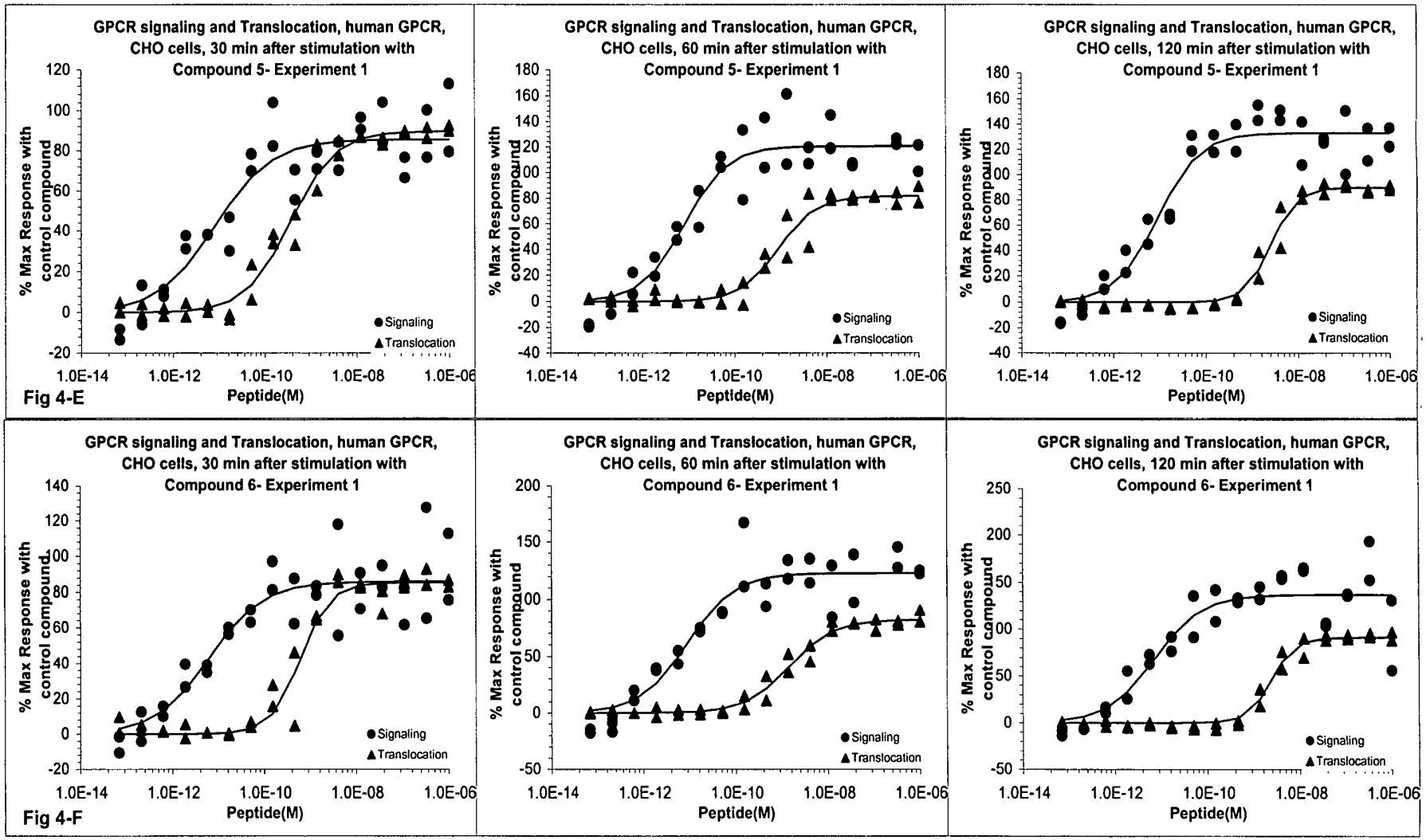

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 5- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 5- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 5- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 6- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 6- Experiment 1
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 6- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 4-E

Fig 4-F

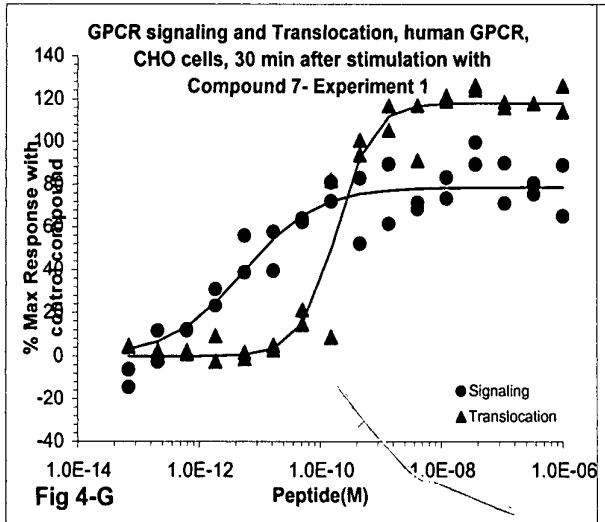
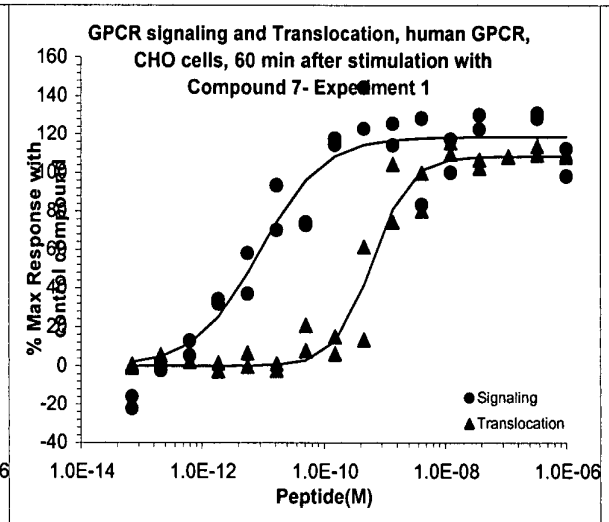
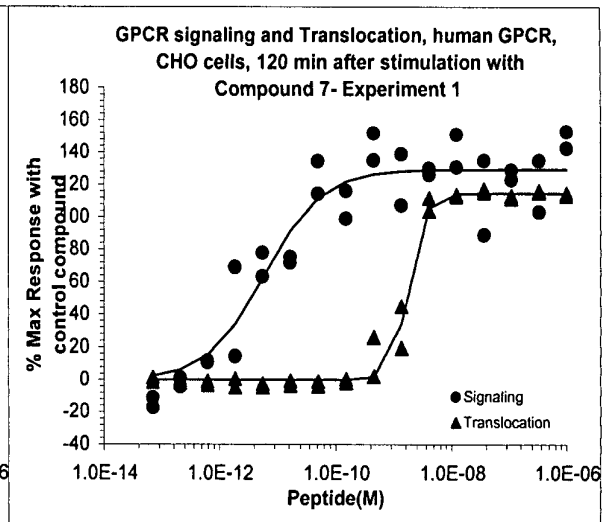

GPCR signaling and Translocation, human GPCR,
CHO cells, 30 min after stimulation with
Compound 7- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-G


GPCR signaling and Translocation, human GPCR,
CHO cells, 60 min after stimulation with
Compound 7- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, human GPCR,
CHO cells, 120 min after stimulation with
Compound 7- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

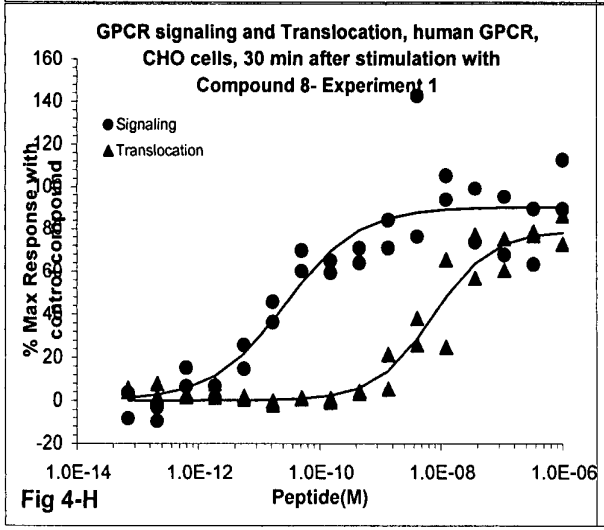
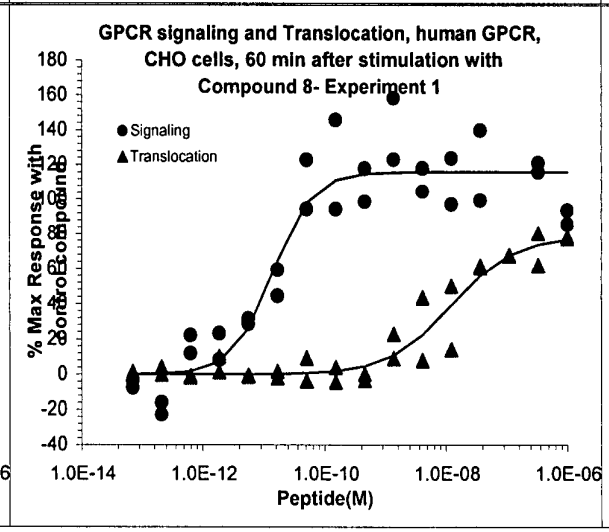
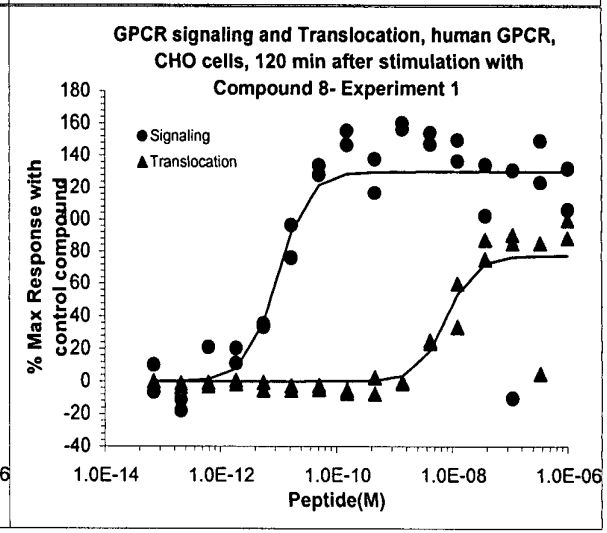

GPCR signaling and Translocation, human GPCR,
CHO cells, 30 min after stimulation with
Compound 8- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-H


GPCR signaling and Translocation, human GPCR,
CHO cells, 60 min after stimulation with
Compound 8- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, human GPCR,
CHO cells, 120 min after stimulation with
Compound 8- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

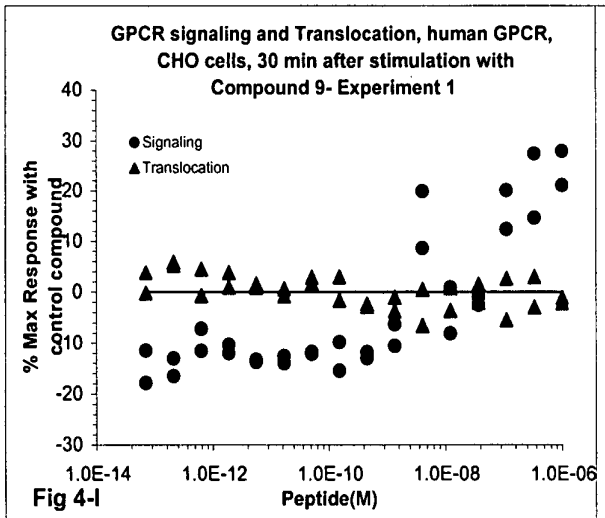
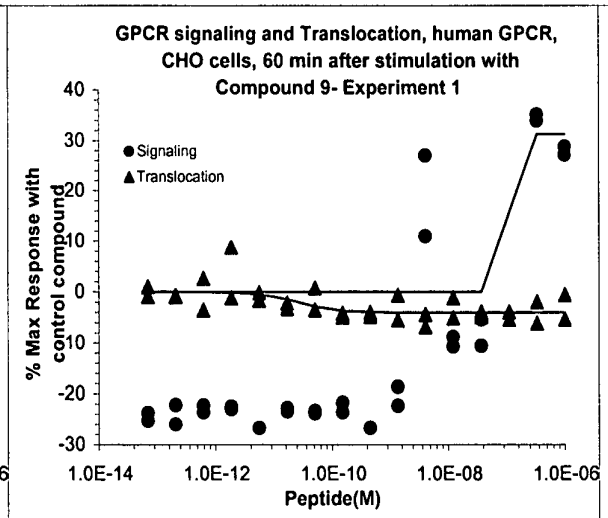
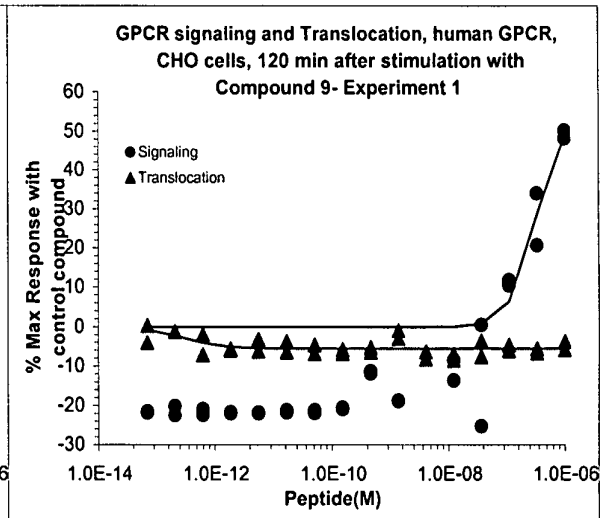

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 9- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)

Fig 4-I


GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 9- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)


GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 9- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)

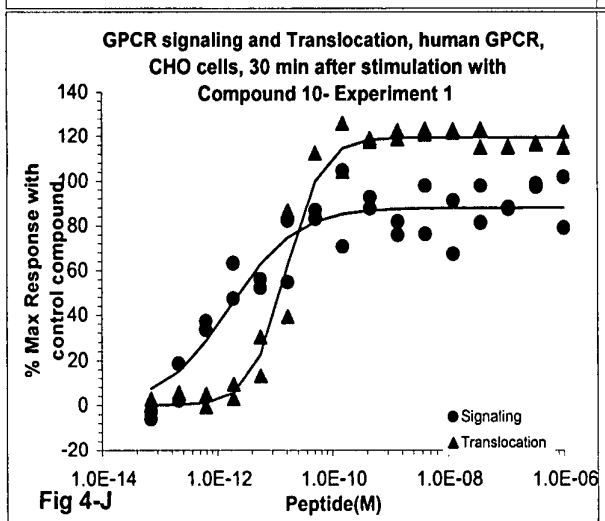
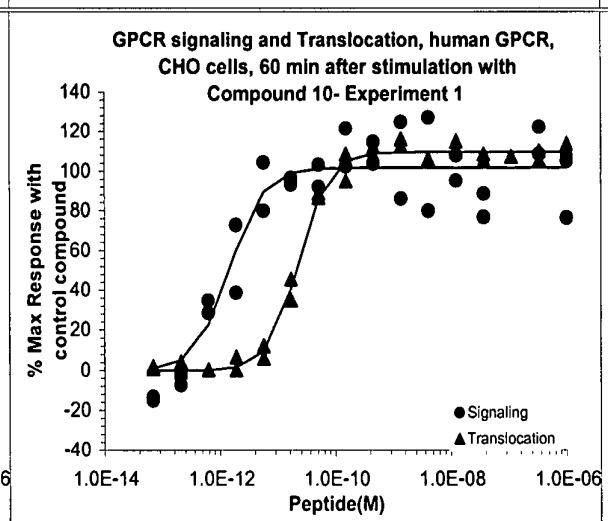
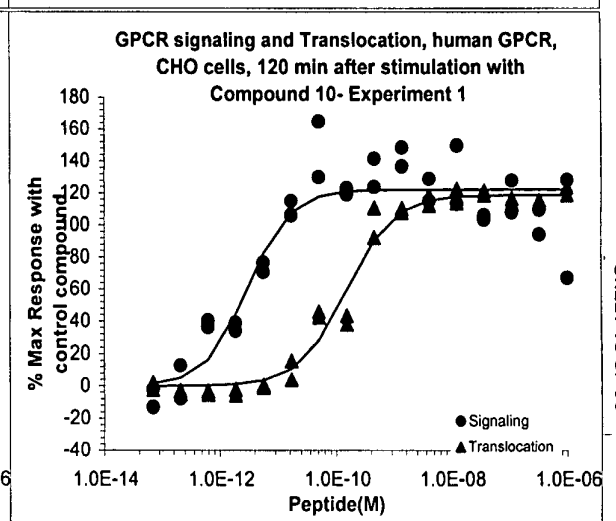

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 10- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)

Fig 4-J


GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 10- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)


GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 10- Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 11- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
=Signaling"
Translocation

Fig 4-K

GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 11- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
Signaling
Translocation

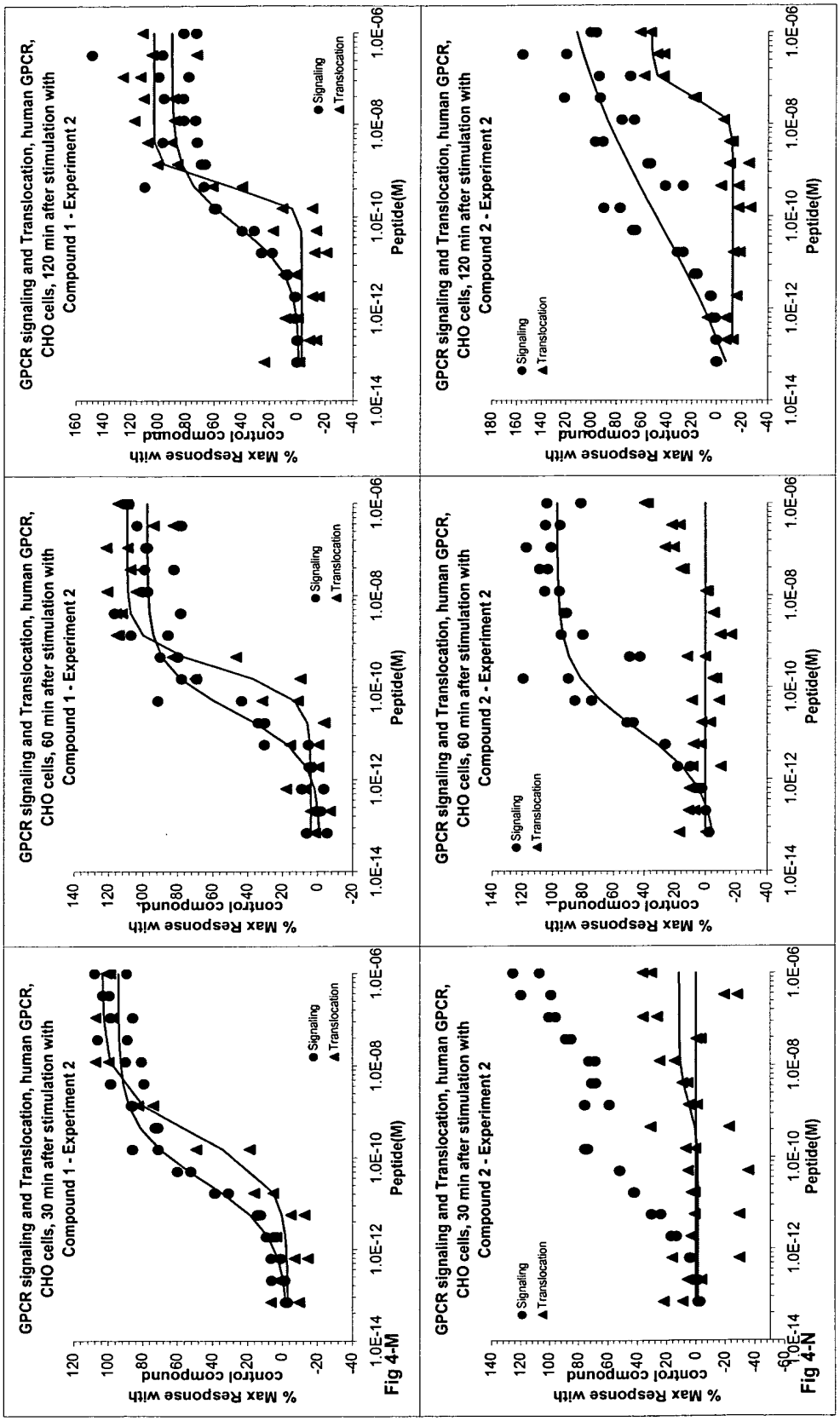
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 11- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
Signaling
Translocation

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 12- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
Signaling
Translocation

Fig 4-L

GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 12- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
Signaling
Translocation

GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 12- Experiment 1
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
Signaling
TF: 120 Min


GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 2 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 2 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 2 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
Fig 4-M
Fig 4-N

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 4 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 4-O

Fig 4-P

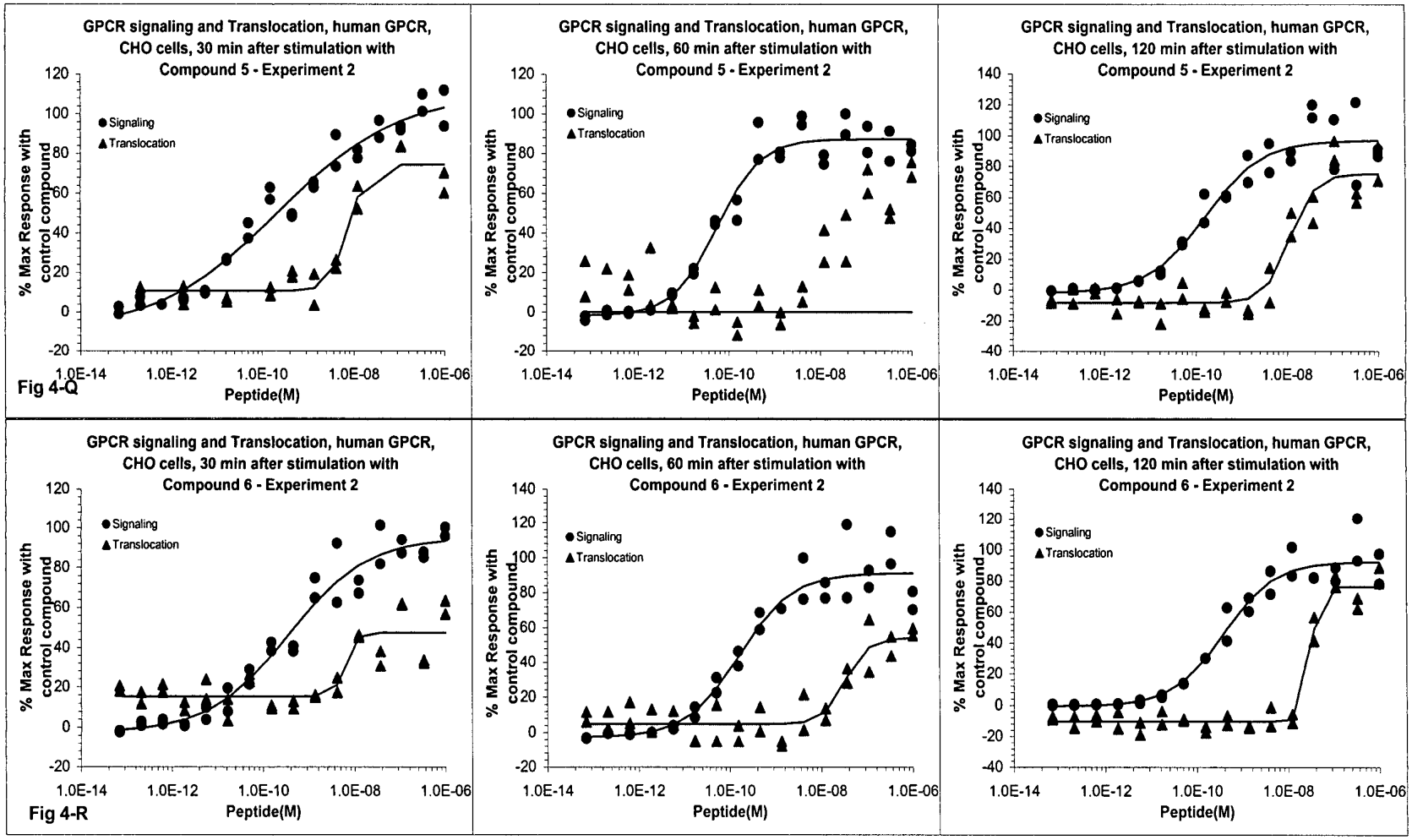

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 6 - Experiment 2
% Max Response with control compound
Signaling
Translocation
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 4-Q

Fig 4-R

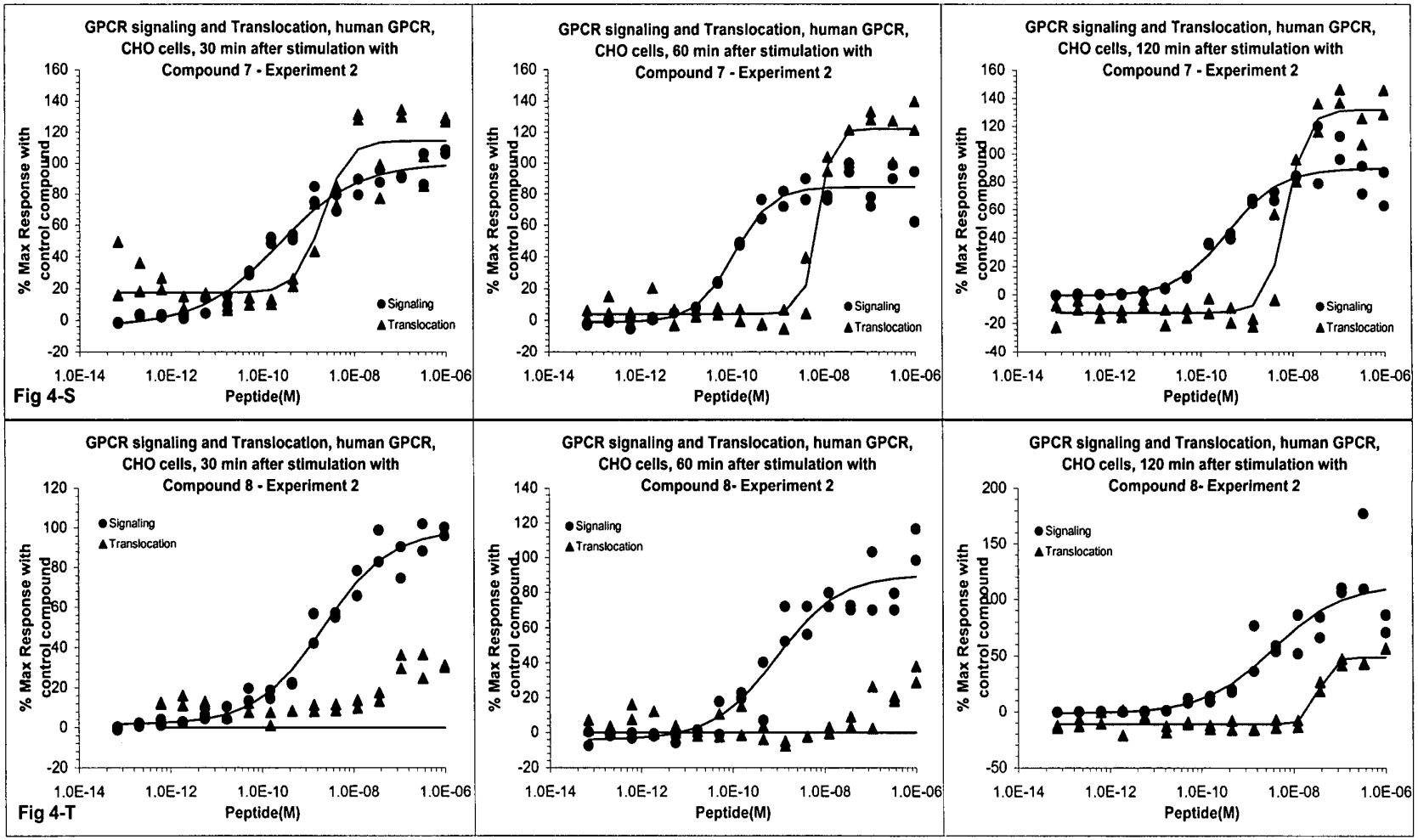

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 8- Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 8- Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-S

Fig 4-T

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 9- Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 9- Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 10 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 4-U

Fig 4-V

GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 30 min after stimulation with Compound 12 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 60 min after stimulation with Compound 12 - Experiment 2
GPCR signaling and Translocation, human GPCR, CHO cells, 120 min after stimulation with Compound 12 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 4-W

Fig 4-X

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 2 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 2 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 2 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-A

Fig. 5-B

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 4 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 4 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 4 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig. 5-C

Fig. 5-D

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 5 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 5 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 5 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 6 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 6 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 6 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig. 5-E

Fig. 5-F

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 8 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 8 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 8 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)

Fig. 5-G

Fig. 5-H

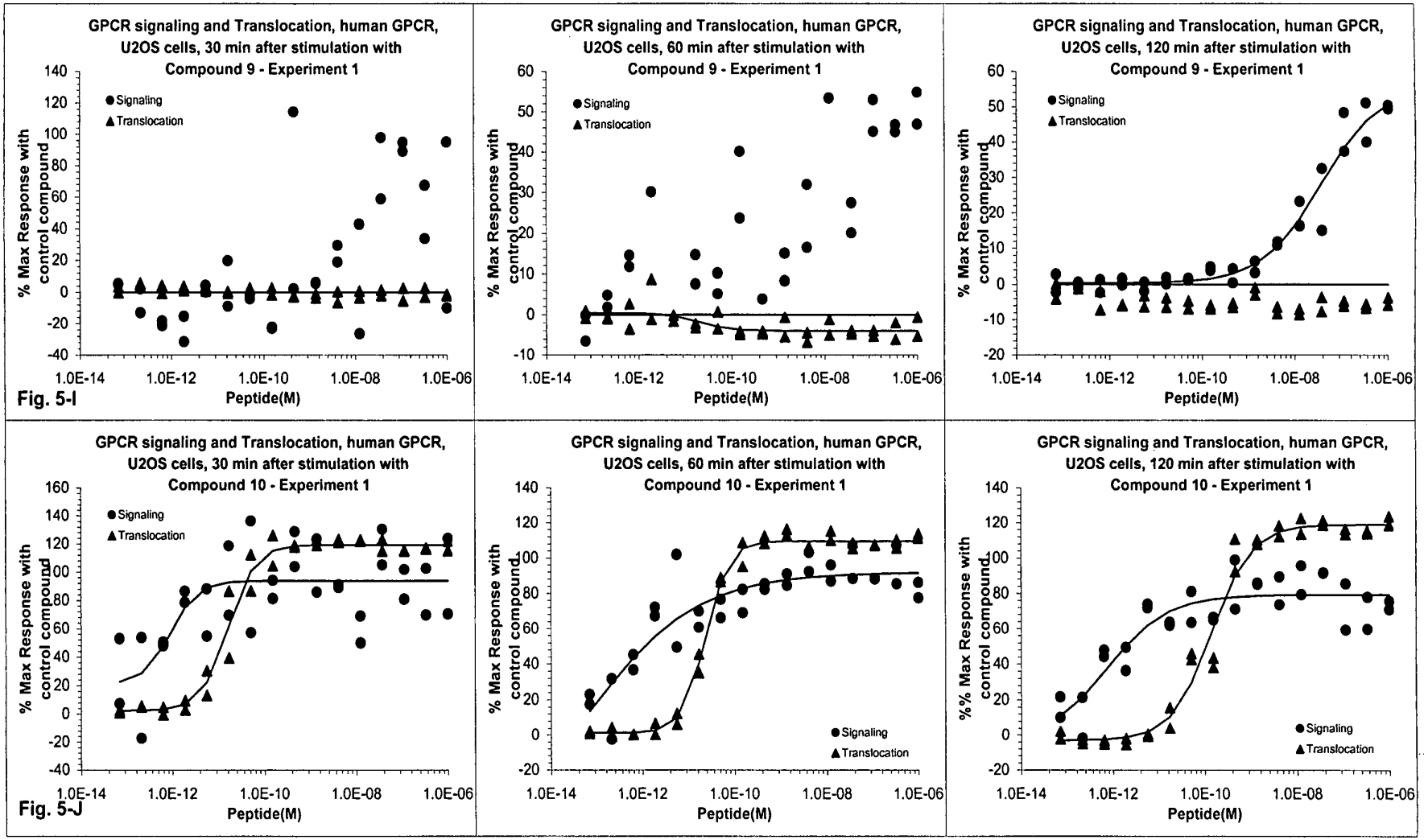

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 9 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 9 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 9 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 10 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 10 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 10 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-I

Fig. 5-J

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 12 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)

Fig. 5-K

Fig. 5-L

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 1 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 2 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 2 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 2 - Experiment 2

Fig. 5-M

Fig. 5-N

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 4 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-O

Fig 5-P

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 6- Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-Q

Fig. 5-R

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 7- Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 8 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)

Fig. 5-S

Fig. 5-T

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 10 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-U

Fig. 5-V

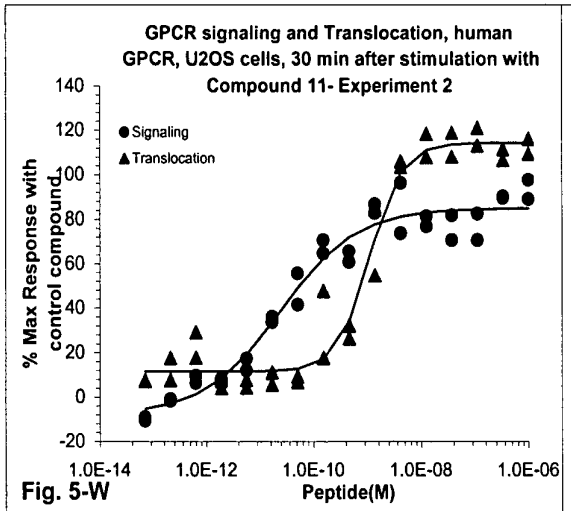
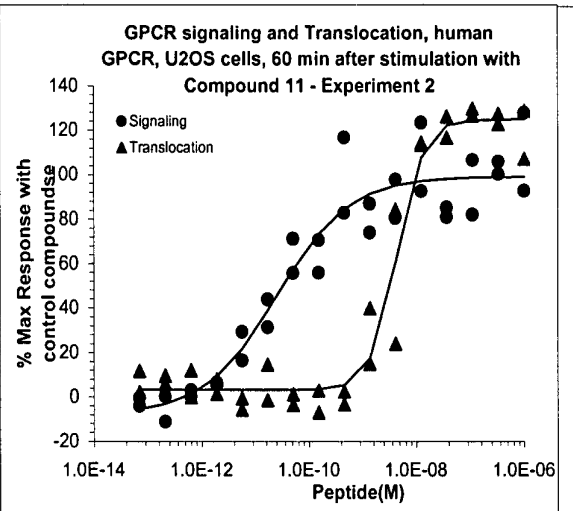
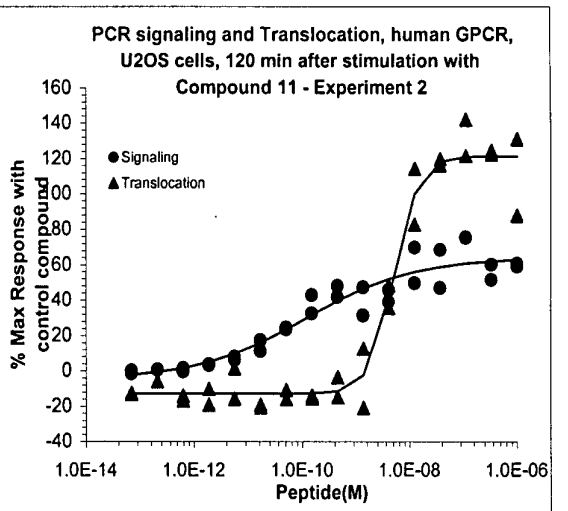

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 11- Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-W


GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 11 - Experiment 2
● Signaling
▲ Translocation
% Max Response with control compoundse
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06


PCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 11 - Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

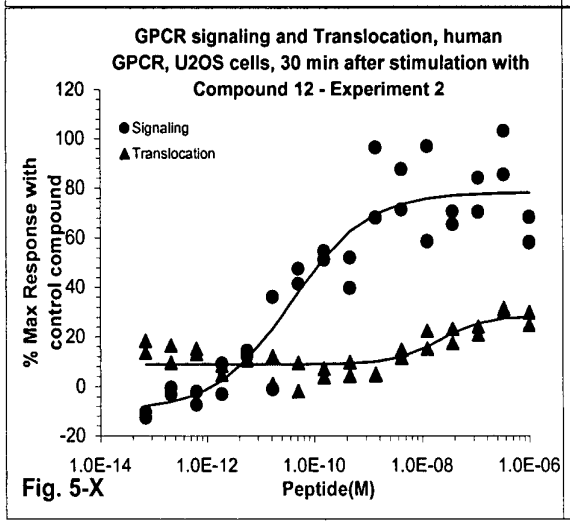
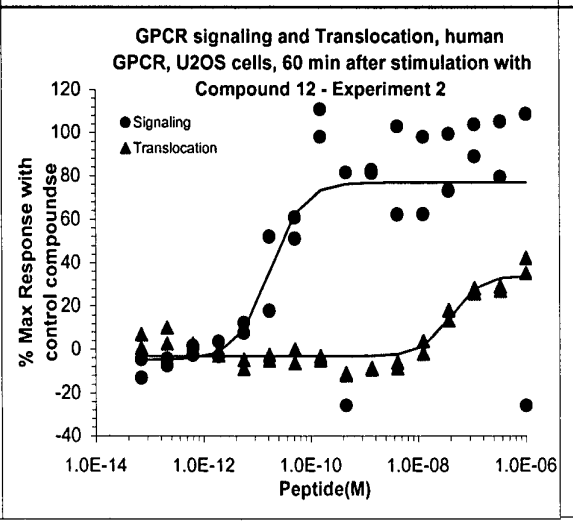
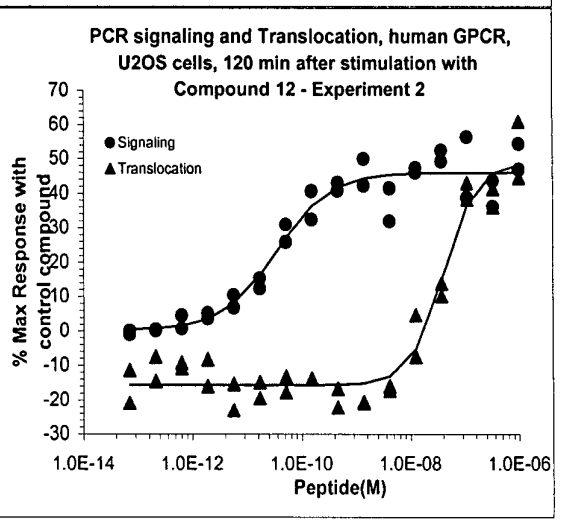

GPCR signaling and Translocation, human GPCR, U2OS cells, 30 min after stimulation with Compound 12 - Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig. 5-X


GPCR signaling and Translocation, human GPCR, U2OS cells, 60 min after stimulation with Compound 12 - Experiment 2
● Signaling
▲ Translocation
% Max Response with control compoundse
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06


PCR signaling and Translocation, human GPCR, U2OS cells, 120 min after stimulation with Compound 12 - Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

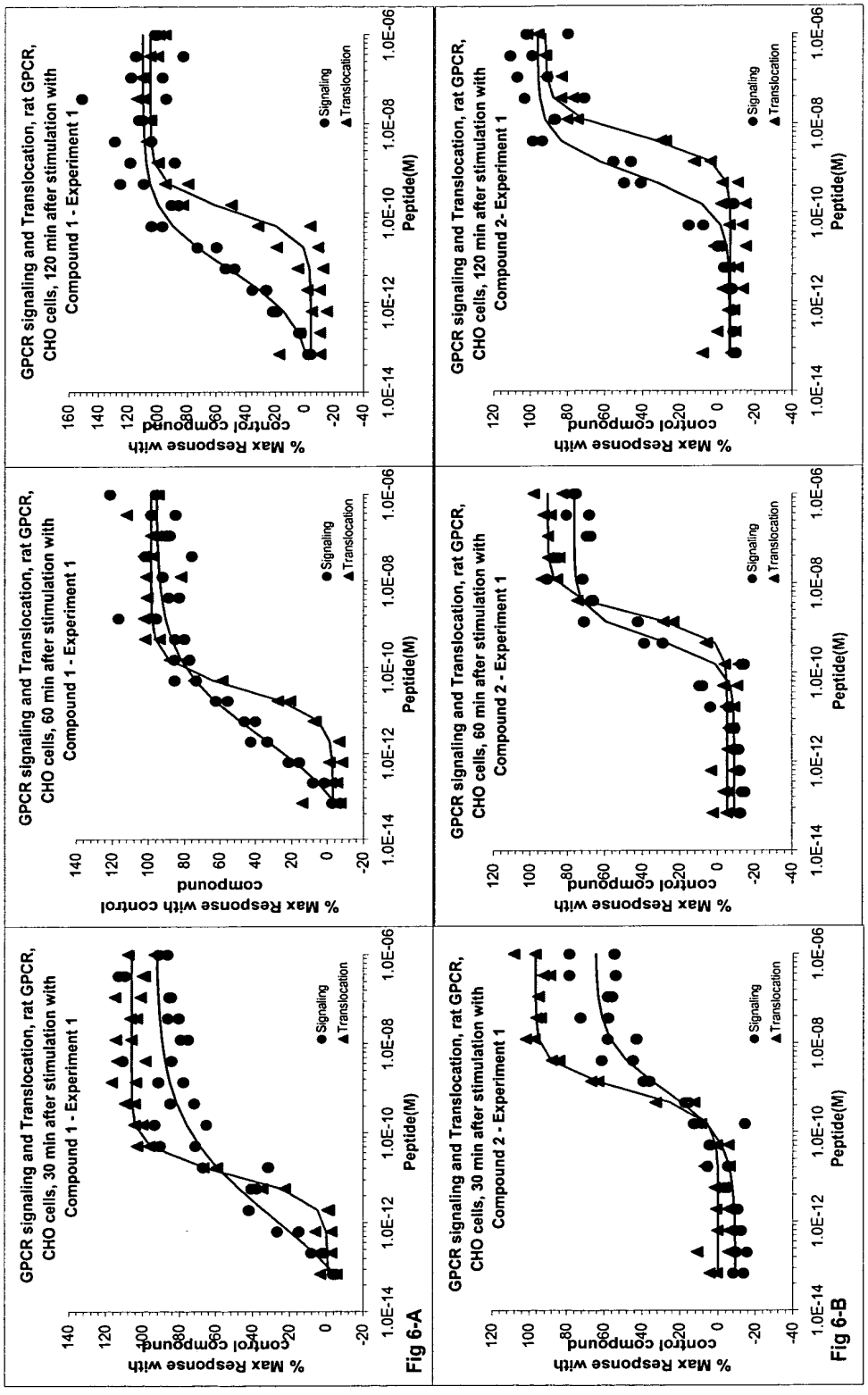

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 1 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 2 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 2 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 2- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 6-A

Fig 6-B

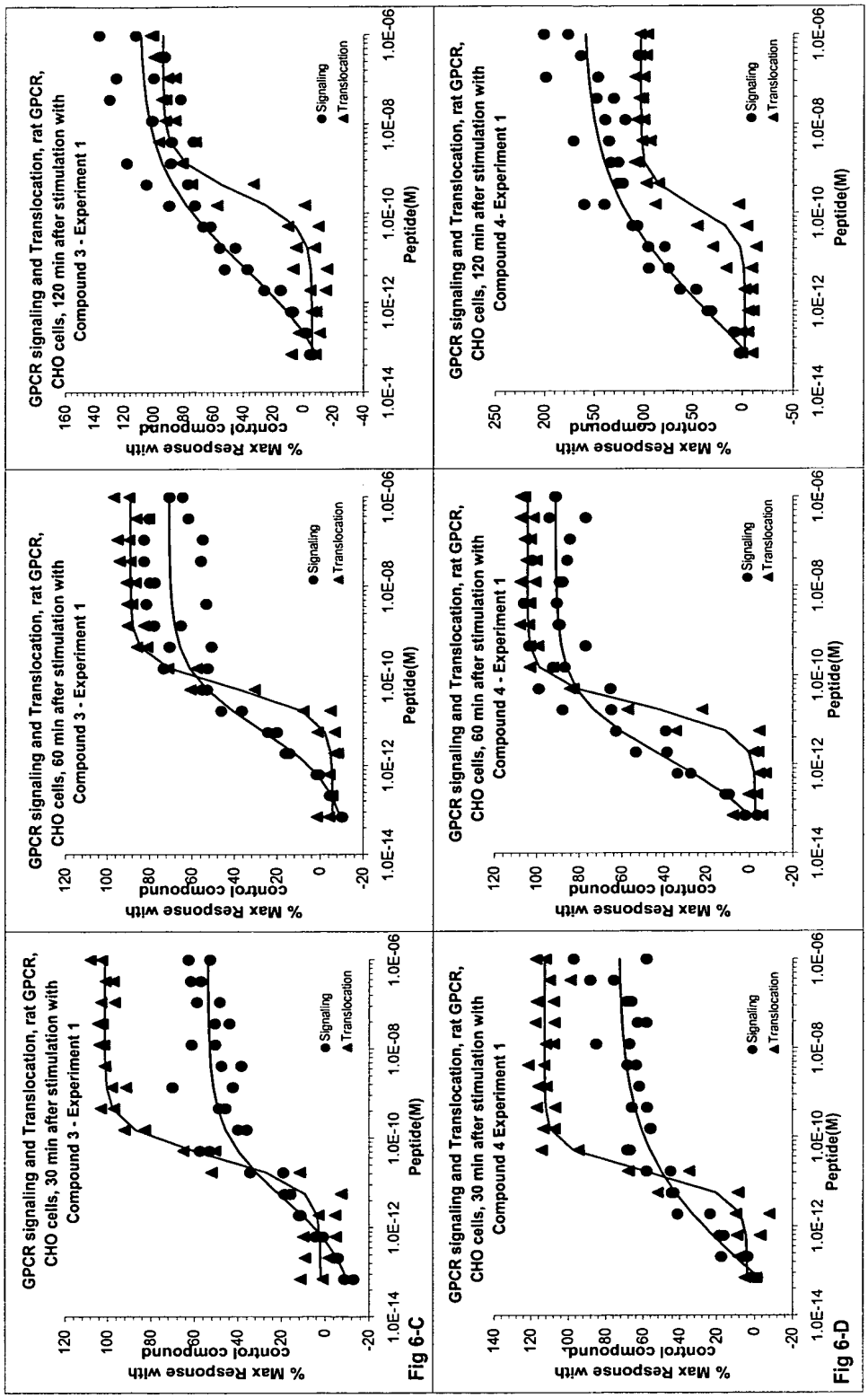

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 4 Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 4 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 4- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 6-C

Fig 6-D

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 5- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 5 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 5 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 6 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 6 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 6- Experiment 1

Fig 6-E

Fig 6-F

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 7- Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 8 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 8 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 8 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-G

Fig 6-H

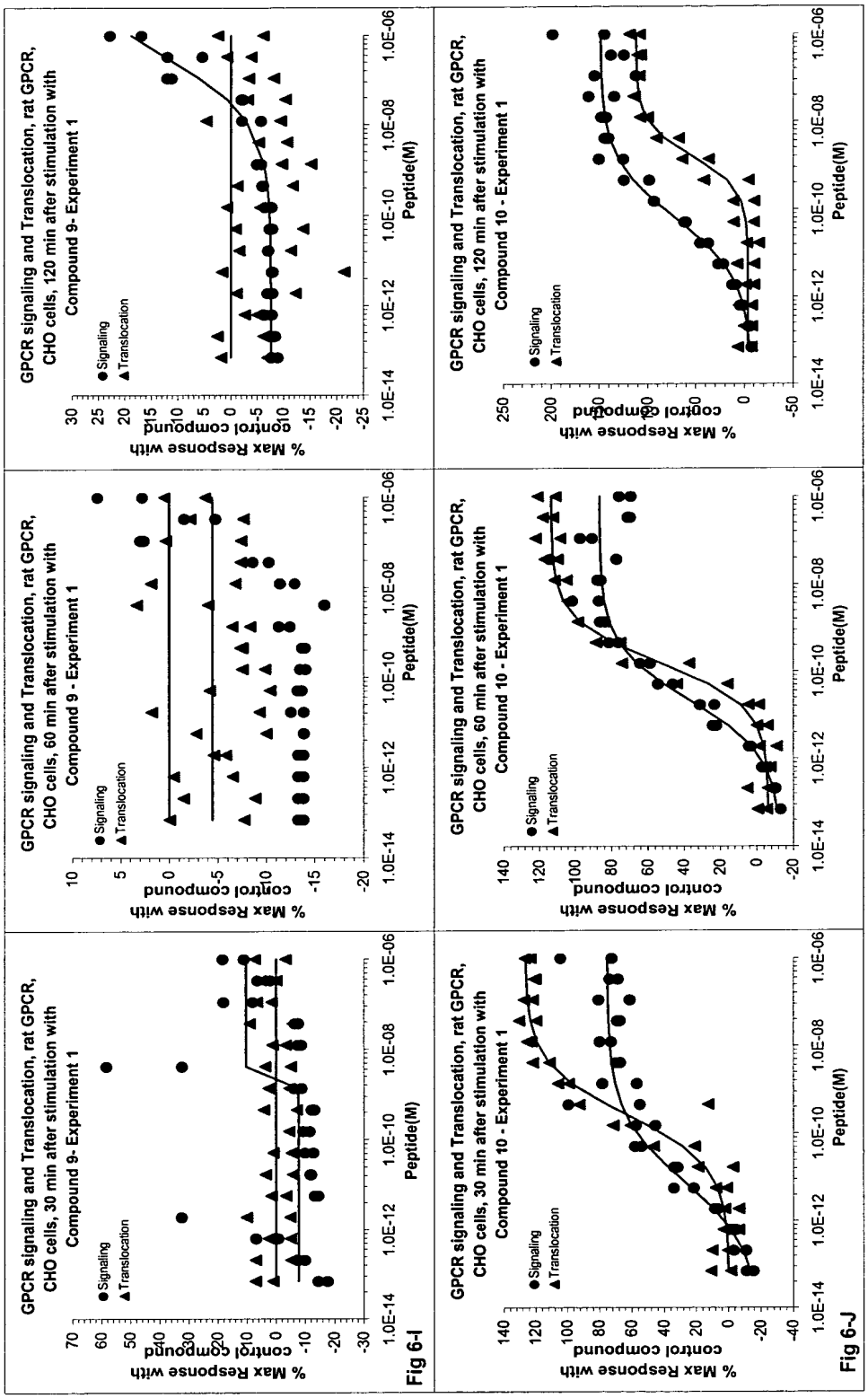

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 9- Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 9 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 9- Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 10 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 10 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 10 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-I

Fig 6-J

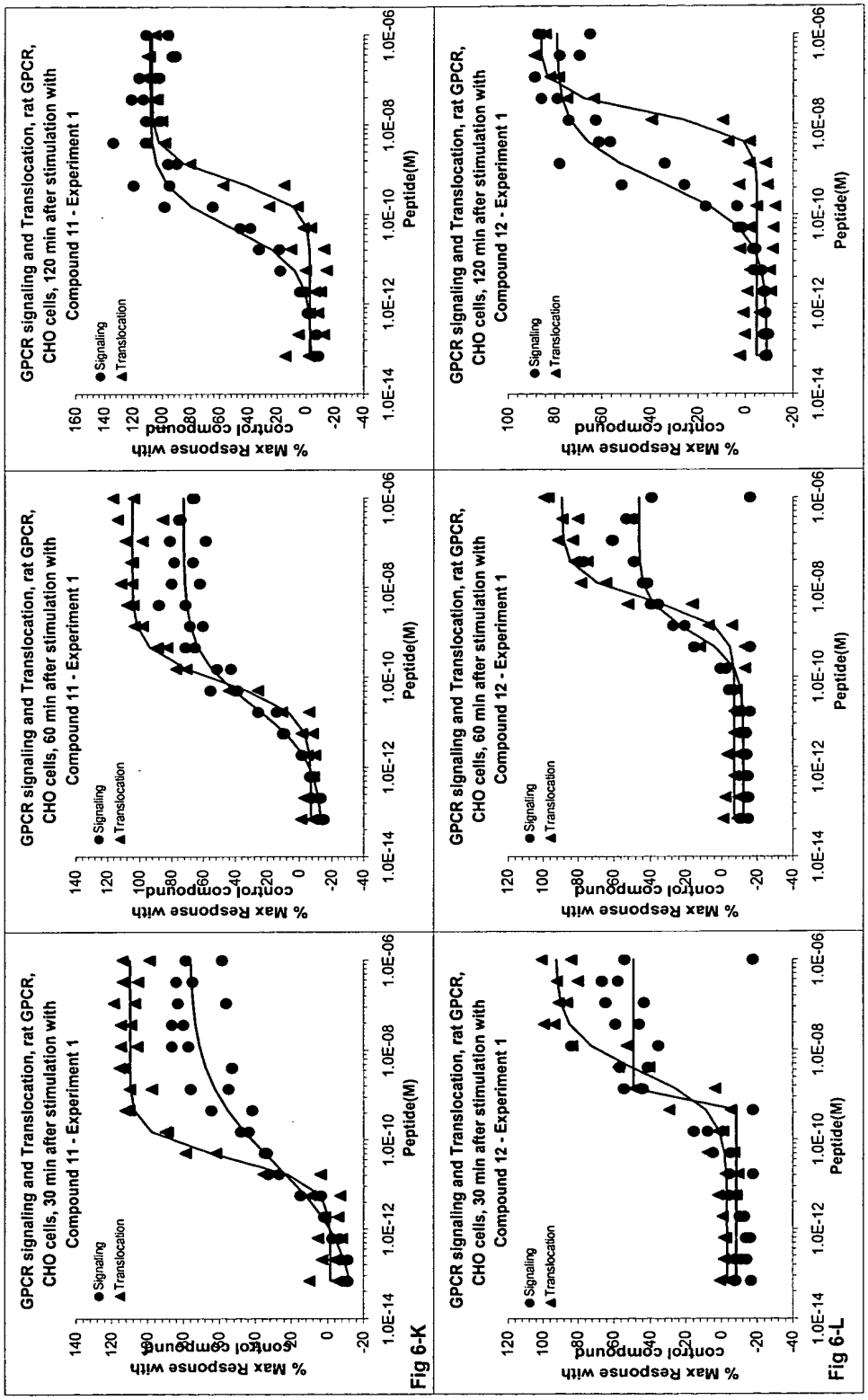

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 12 - Experiment 1
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-K

Fig 6-L

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 1 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 1- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 2- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 2 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 2- Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-M

Fig 6-N

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 3 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 3- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 4 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 4- Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-O

Fig 6-P

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 5- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 6- Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-Q

Fig 6-R

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 7- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 8- Experiment 2
● Signaling
▲ Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06
-20
0
20
40
60
80
100
120
140

Fig 6-S

Fig 6-T

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 9- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 10 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 10- Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-U

Fig 6-V

GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 11- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 30 min after stimulation with Compound 12- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 60 min after stimulation with Compound 12- Experiment 2
GPCR signaling and Translocation, rat GPCR, CHO cells, 120 min after stimulation with Compound 12- Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 6-W

Fig 6-X

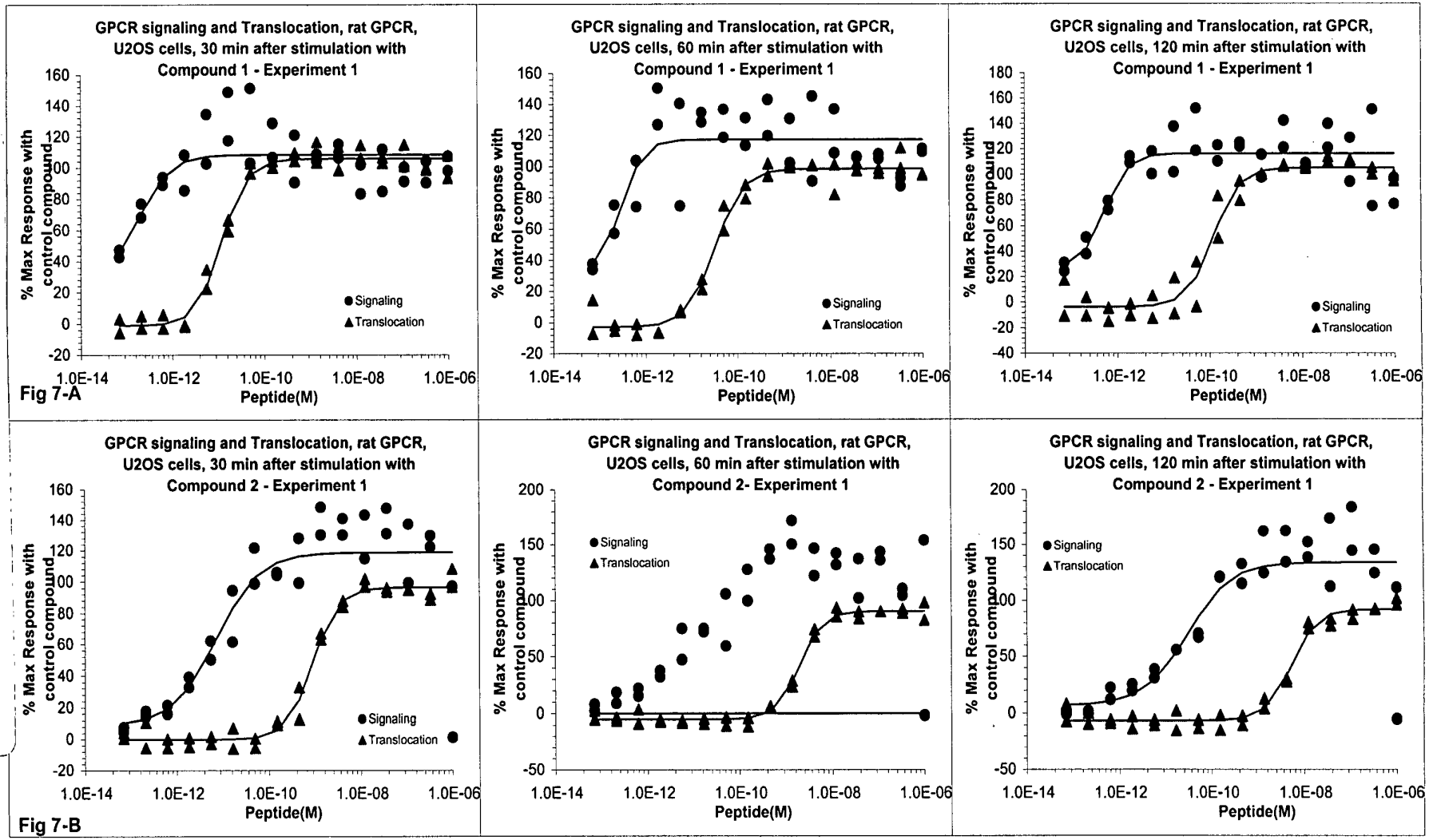

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 1 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 2 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 2- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 2 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 7-A

Fig 7-B

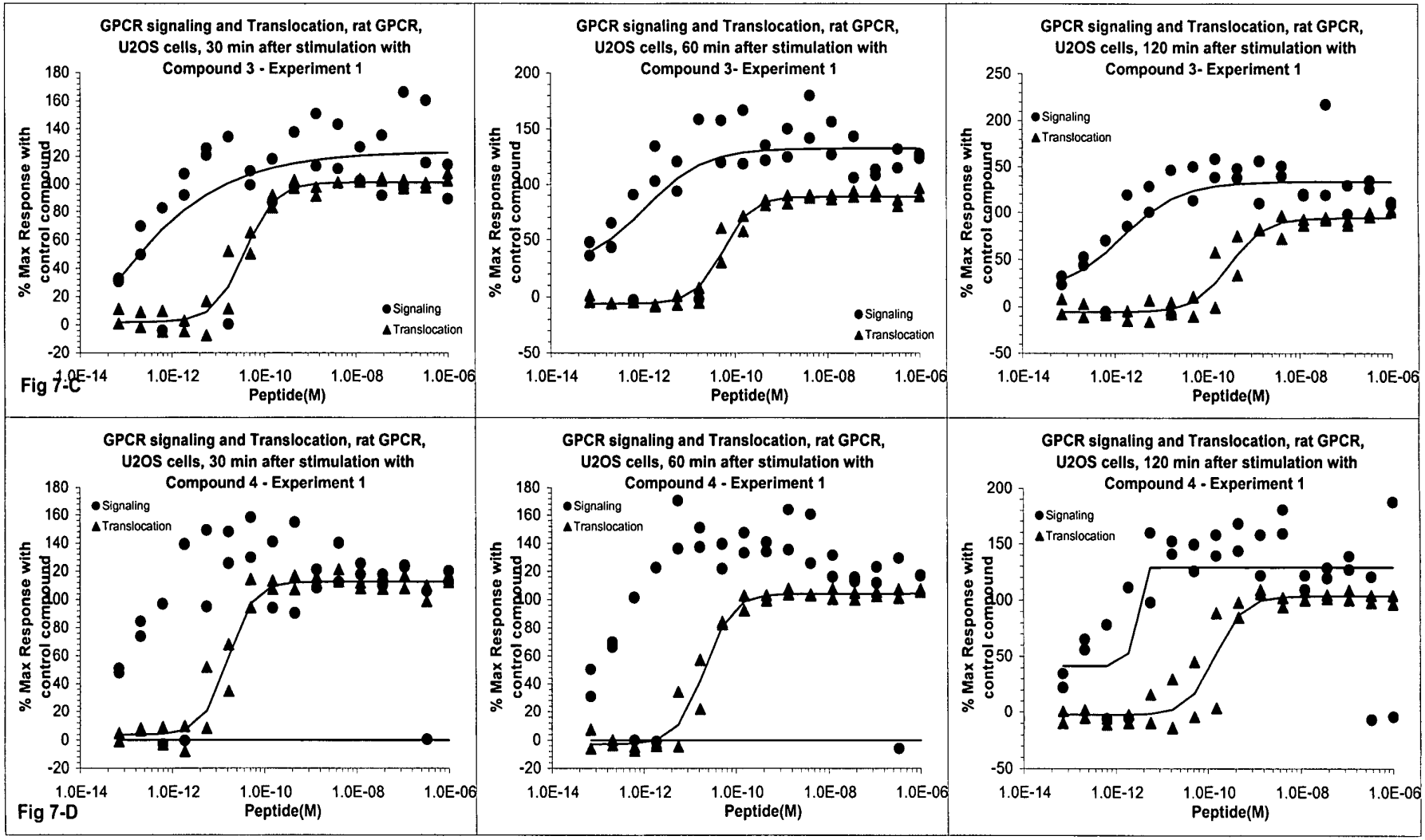

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 3 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 3- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 3- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 4 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 4 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 4 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-C

Fig 7-D

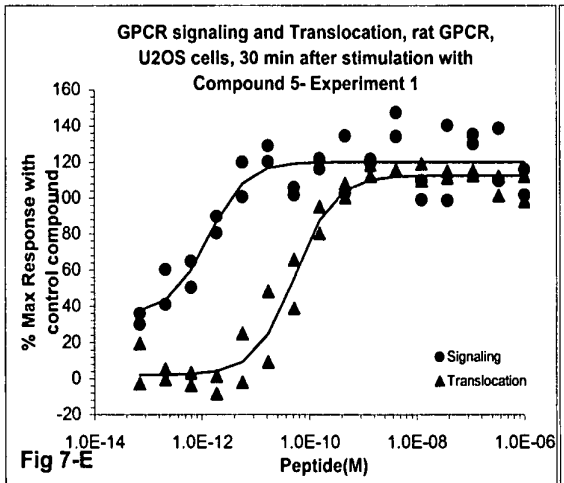
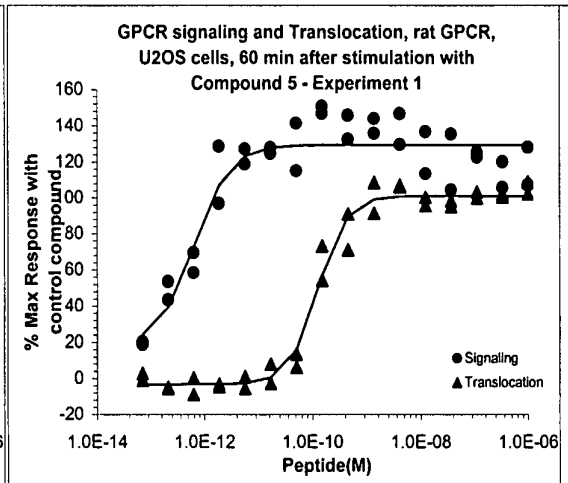
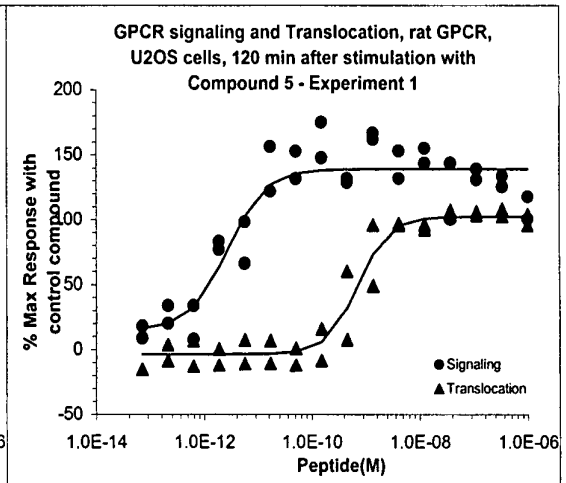

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 5- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 7-E


GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 5 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 5 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

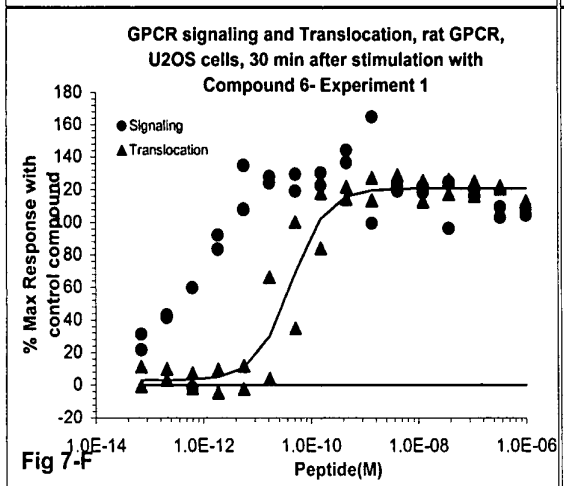
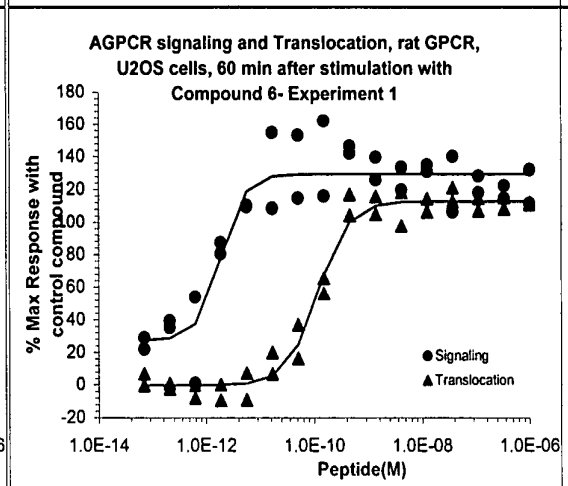
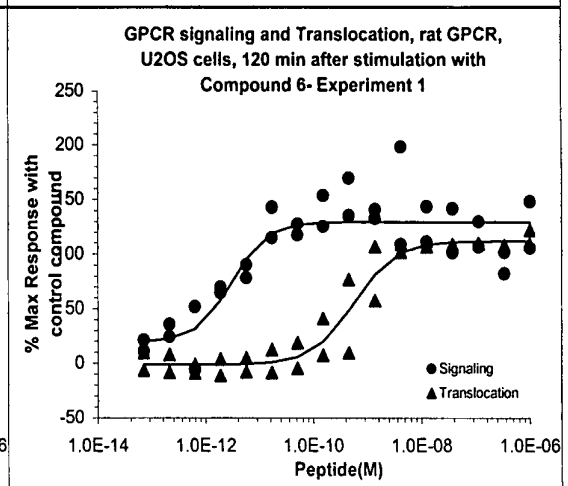

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 6- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 7-F


AGPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 6- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation


GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 6- Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation

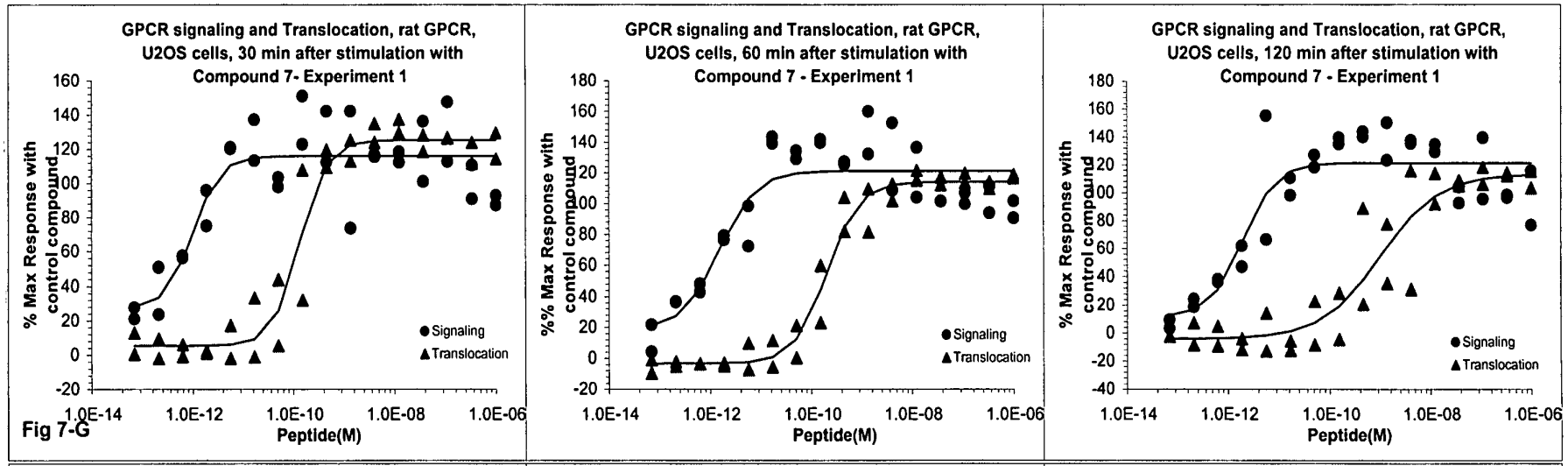

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 7- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 7 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 7 - Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-G

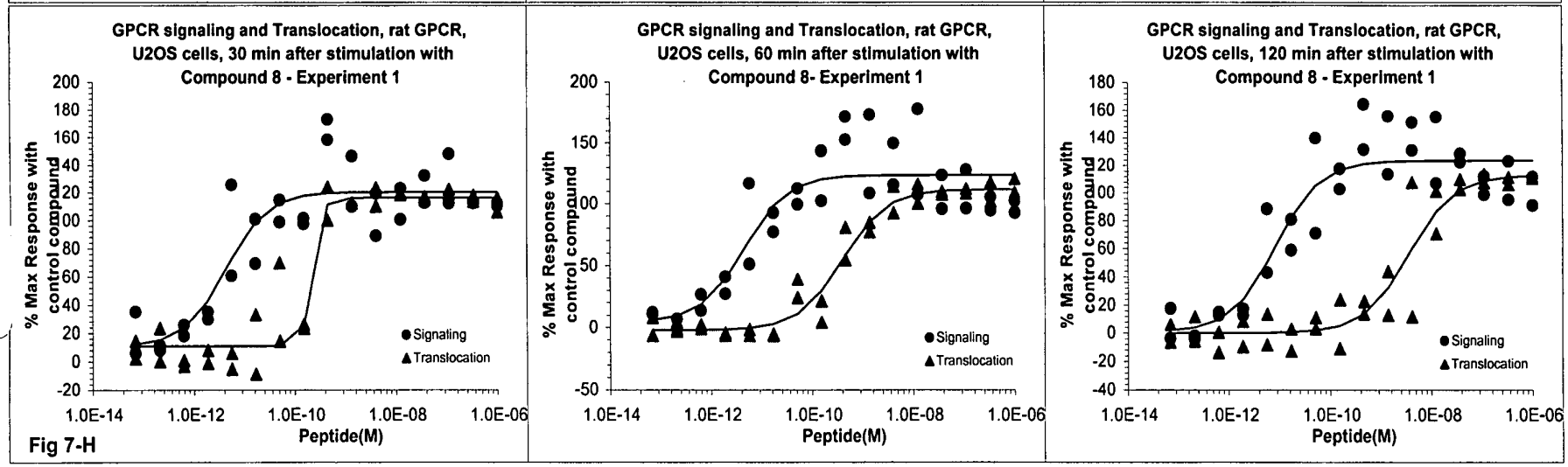

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 8 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 8- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 8 - Experiment 1
% Max Response with control compound
Signaling
Translocation
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-H

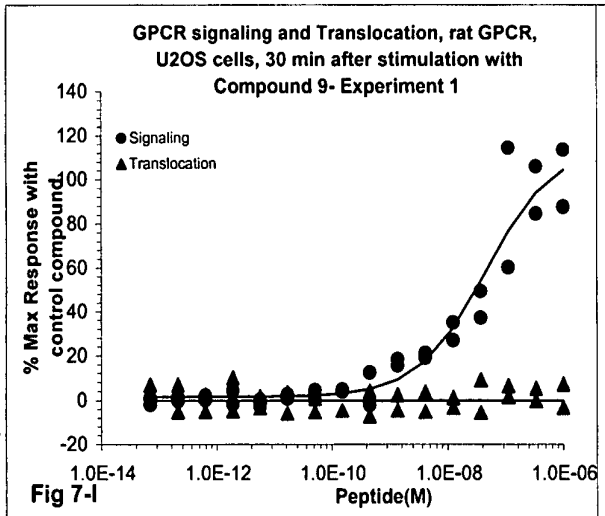
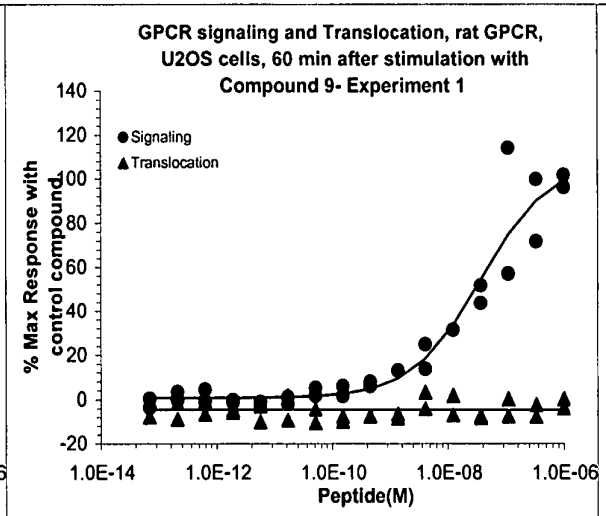
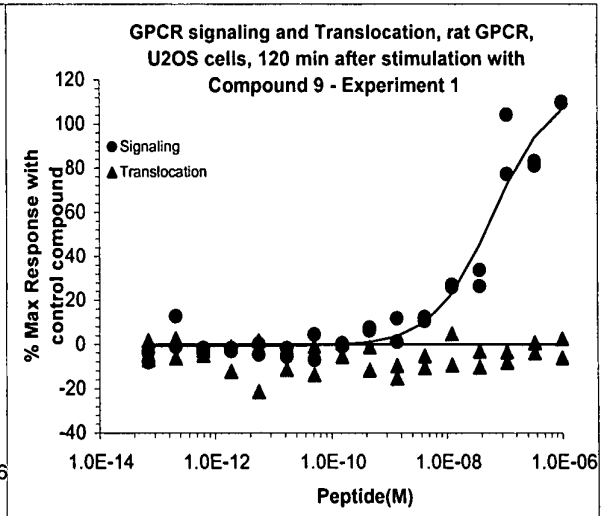

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 9- Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-I


GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 9- Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06


GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 9 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

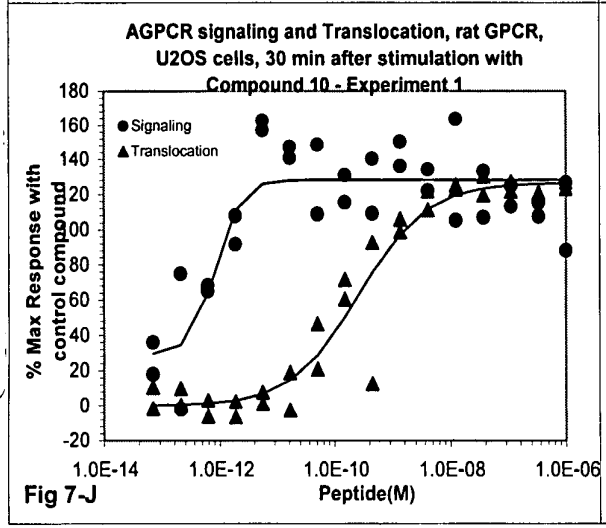
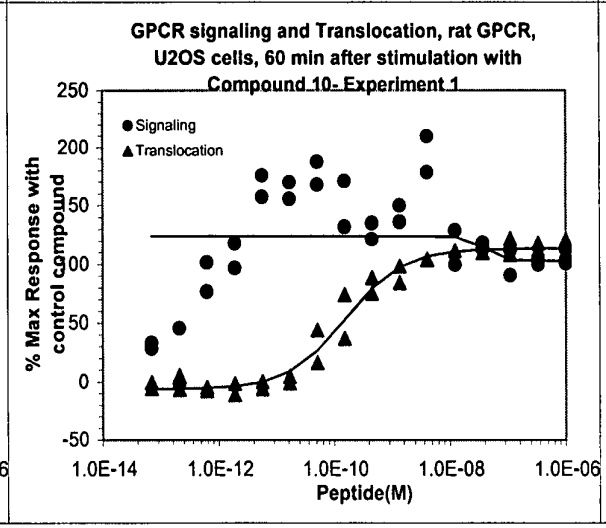
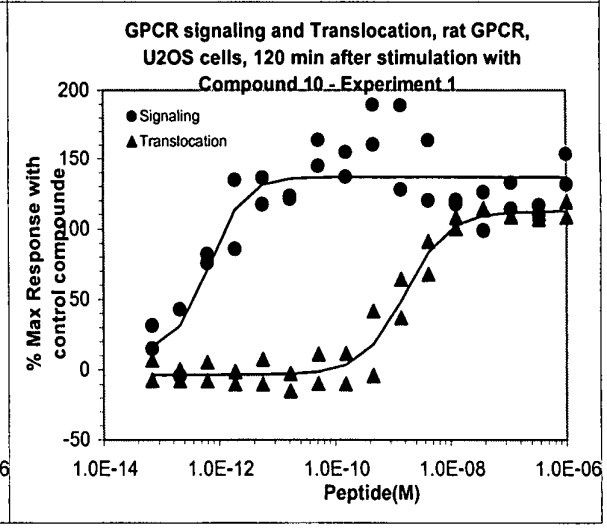

AGPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 10 - Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-J


GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 10- Experiment 1
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06


GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 10 - Experiment 1
Signaling
Translocation
% Max Response with control compounde
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

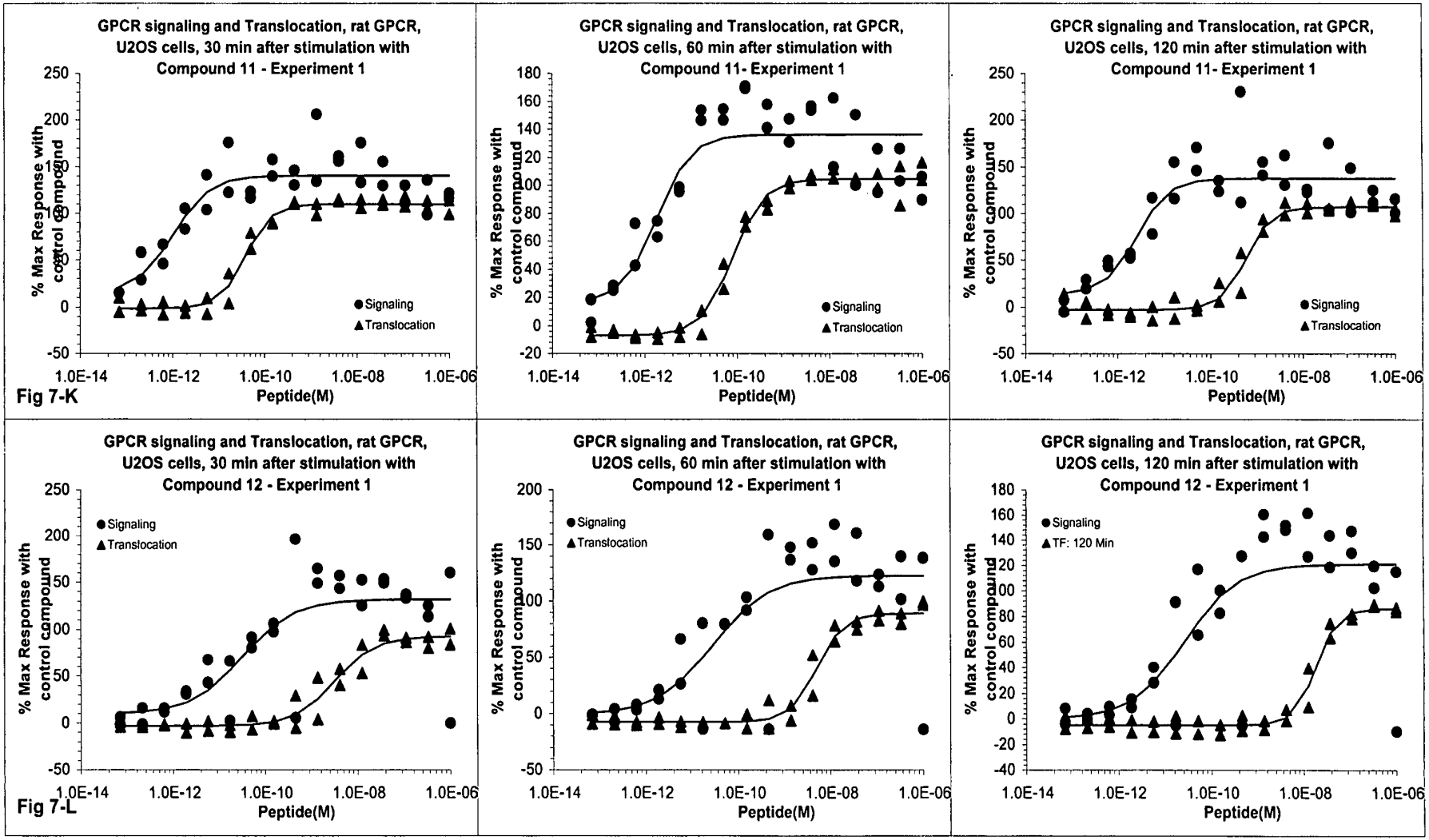

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 11 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 11- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 11- Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 12 - Experiment 1
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 12 - Experiment 1
% Max Response with control compound
Peptide(M)
Signaling
Translocation
TF: 120 Min
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-K

Fig 7-L

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 1 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 1 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 1- Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 2 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 2 - Experiment 2
% Max PTH Response
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 2 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation

Fig 7-M

Fig 7-N

Fig 7-O

Fig 7-P

APPLICATION FILING DATE: OCTOBER 24, 2003
TITLE: METHODS OF IDENTIFYING REDUCED INTERNALIZATION TRANSMEMBRANE AGONISTS
INVENTOR(S): CARSON LOOMIS, ET AL.
APPLICATION SERIAL NO.: UNASSIGNED

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 5 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 6- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 6 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 6 - Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-Q

Fig 7-R

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 7- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 7- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 7 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 8 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 8 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

Fig 7-S

Fig 7-T

GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 9- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 9 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 10- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 10- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 10 - Experiment 2
Signaling
Translocation
% Max Response with control compound
Peptide(M)
1.0E-14
1.0E-12
1.0E-10
1.0E-08
1.0E-06

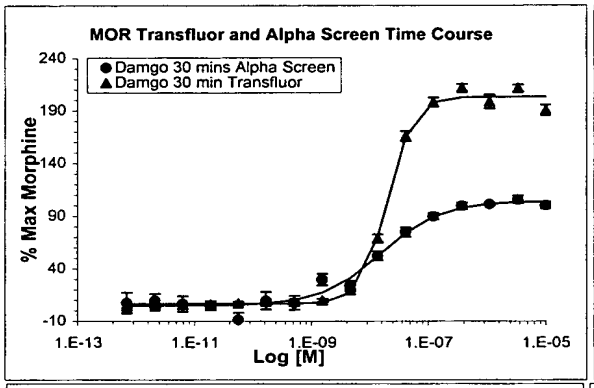
Fig 7-U

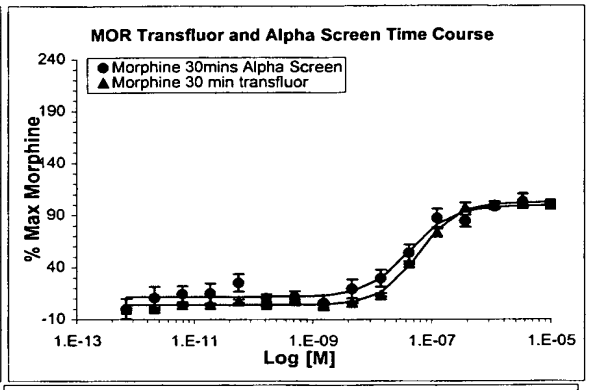
Fig 7-V

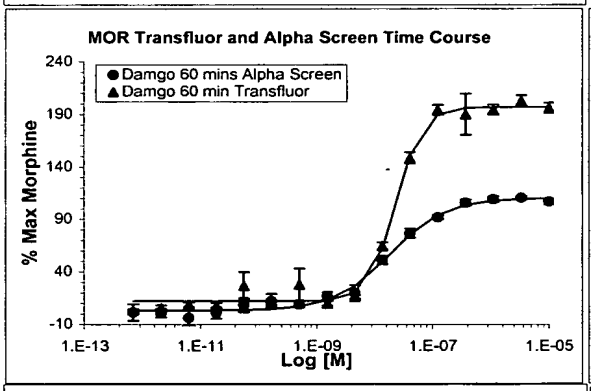
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 11- Experiment 2
% Max Response with control compound
Peptide(M)
Signaling
Translocation
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 11- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 11 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 30 min after stimulation with Compound 12- Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 60 min after stimulation with Compound 12 - Experiment 2
GPCR signaling and Translocation, rat GPCR, U2OS cells, 120 min after stimulation with Compound 12 - Experiment 2

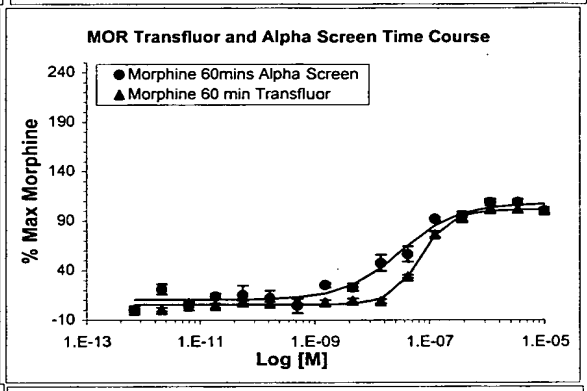
Fig 7-W

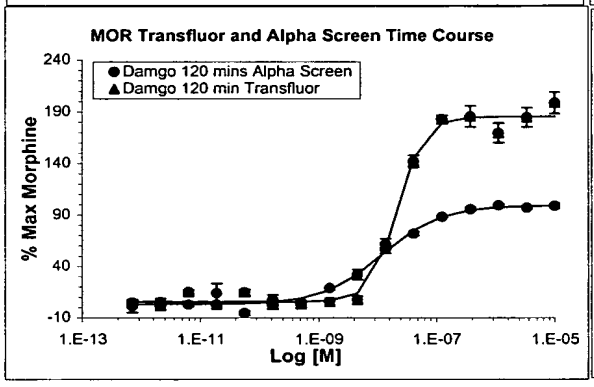
Fig 7-X


MOR Transfluor and Alpha Screen Time Course
Damgo 30 mins Alpha Screen
Damgo 30 min Transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]


MOR Transfluor and Alpha Screen Time Course
Morphine 30mins Alpha Screen
Morphine 30 min transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]


MOR Transfluor and Alpha Screen Time Course
Damgo 60 mins Alpha Screen
Damgo 60 min Transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]


MOR Transfluor and Alpha Screen Time Course
Morphine 60mins Alpha Screen
Morphine 60 min Transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]


MOR Transfluor and Alpha Screen Time Course
Damgo 120 mins Alpha Screen
Damgo 120 min Transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]

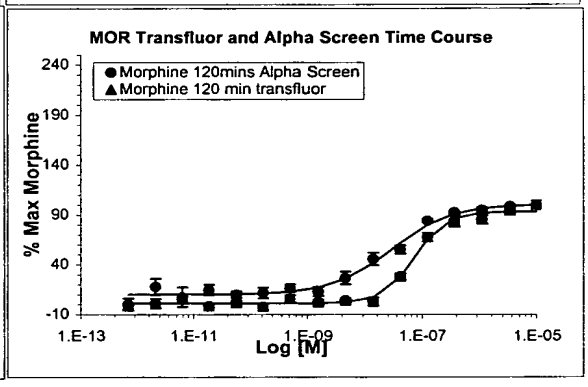
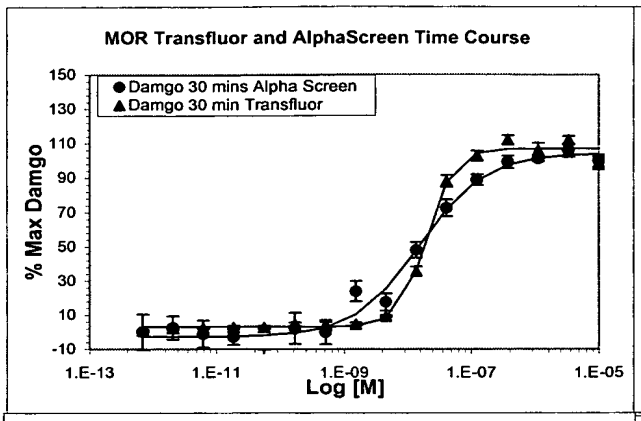
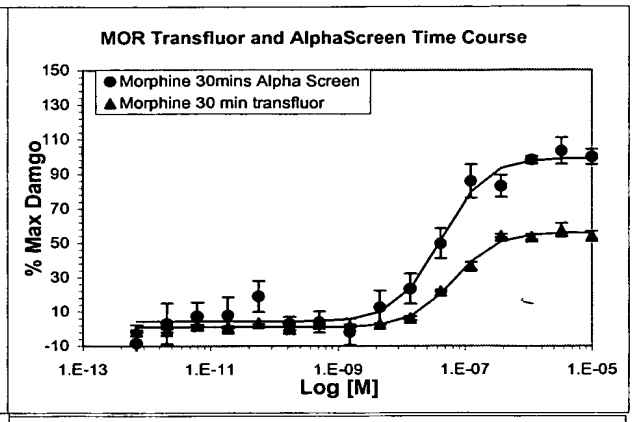
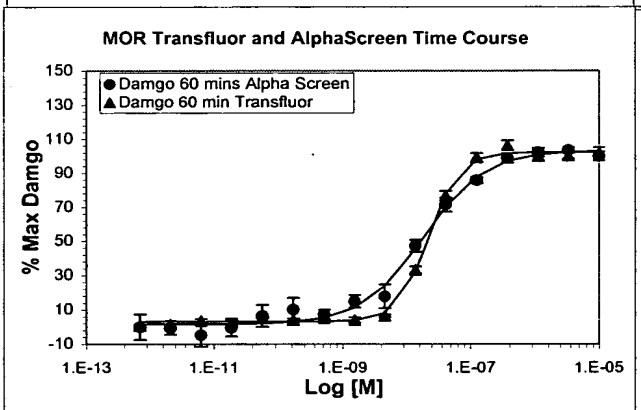
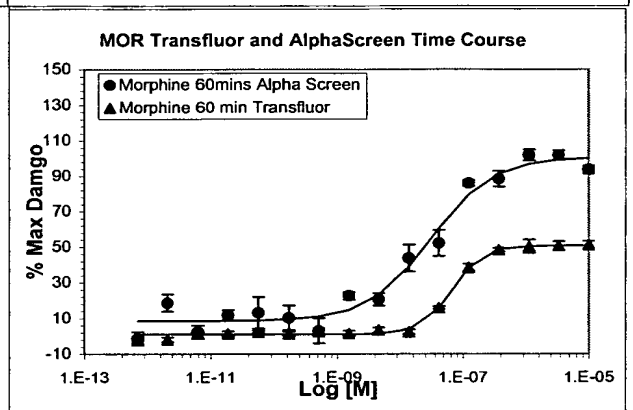

MOR Transfluor and Alpha Screen Time Course
Morphine 120mins Alpha Screen
Morphine 120 min transfluor
% Max Morphine
240
190
140
90
40
-10
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05
Log [M]

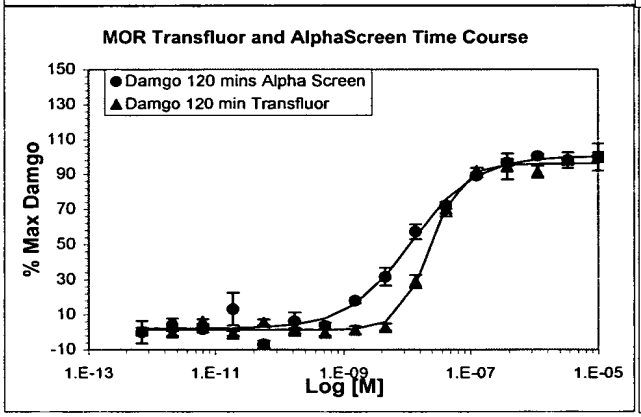
Fig 8-A **Fig 8-B**


MOR Transfluor and AlphaScreen Time Course
Damgo 30 mins Alpha Screen
Damgo 30 min Transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05


MOR Transfluor and AlphaScreen Time Course
Morphine 30mins Alpha Screen
Morphine 30 min transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05


MOR Transfluor and AlphaScreen Time Course
Damgo 60 mins Alpha Screen
Damgo 60 min Transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05


MOR Transfluor and AlphaScreen Time Course
Morphine 60mins Alpha Screen
Morphine 60 min Transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05


MOR Transfluor and AlphaScreen Time Course
Damgo 120 mins Alpha Screen
Damgo 120 min Transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05

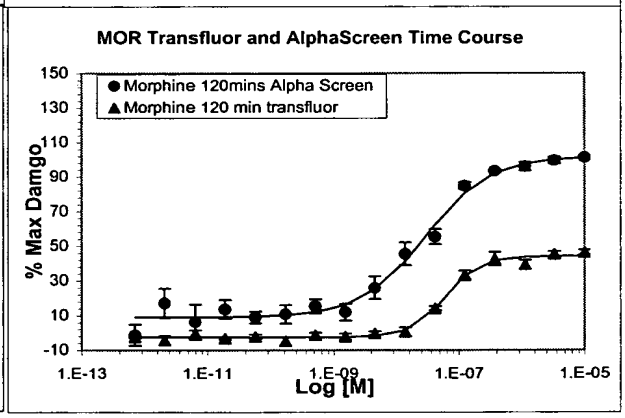

MOR Transfluor and AlphaScreen Time Course
Morphine 120mins Alpha Screen
Morphine 120 min transfluor
% Max Damgo
Log [M]
1.E-13
1.E-11
1.E-09
1.E-07
1.E-05

Fig 8-C **Fig 8-D**